AMERICAN RAILROAD JOURNAL,
AND GENERAL ADVERTISER

FOR RAILROADS, CANALS, STEAMBOATS, MACHINERY AND MINES.

ESTABLISHED 1831.

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AMERICAN RAILROAD JOURNAL.
OFFICE AT THE FRANKLIN HOUSE,
105 Chestnut Street,
PHILADELPHIA, PA.

This is the only periodical having a general circulation throughout the Union, in which all matters connected with public works can be brought to the notice of all persons in any way interested in these undertakings. Hence it offers peculiar advantages for advertising times of departure, rates of fare and freight, improvements in machinery, materials, as iron, timber, stone, cement, etc. It is also the best medium for advertising contracts, and placing the merits of new undertakings fairly before the public.

TERMS.—Five Dollars a year, *in advance.*

RATES OF ADVERTISING.

One page per annum	$125 00
One column "	50 00
One square "	15 00
One page per month	20 00
One column "	8 00
One square "	2 50
One page, single insertion	8 00
One column " "	3 00
One square " "	1 00
Professional notices per annum	5 00

BOSTON AND PROVIDENCE RAILROAD. Passenger Notice. Summer Arrangement. On and after Monday, Sept. 28, 1846, the Passenger Trains will run as follows:

For New York—Night Line, via Stonington. Leaves Boston every day, but Sunday, at 5 p.m.

Accommodation Trains, leave Boston at 7½ a.m. and 3½ p.m., and Providence at 8 a.m. and 3½ p.m.

Dedham trains, leave Boston at 9 a.m.; 3 p.m., 5½ p.m., and 10½ p.m. Leave Dedham at 8 a.m. and 4½ and 9 p.m.

Stoughton trains, leave Boston at 11½ a.m. and 4·10 p.m. Leave Stoughton at 8 a.m. and 2½ p.m.

All baggage at the risk of the owners thereof.

31 1y W. RAYMOND LEE, *Sup't.*

BRANCH RAILROAD and STAGES connecting with the Boston and Providence Railroad.

Stages connect with the Accommodation trains at the Foxboro' Station, to and from Woonsocket. At the Seekonk Station, to and from Lonsdale, R. I. via Pawtucket. At the Sharon Station, to and from Walpole, Mass. And at Dedham Village Station, to and from Medford, via Medway, Mass. At Providence, to and from Bristol, via Warren, R. I.—Taunton, New Bedford and Fall River cars run in connection with the accommodation trains.

PHILADELPHIA AND READING RAILROAD.—Passenger Train Arrangement for **1847.**

A Passenger Train will leave Philadelphia and Pottsville daily, except Sundays, at 9 o'clock A. M.

The Train from Philadelphia arrives at Reading at 12 18 M.

The Train from Pottsville arrives at Reading at 10 43 A. M.

Fares.	Miles.	No. 1.	No. 2.
Between Phila. and Pottsville,	92	$3·50 and	$3·00
" " Reading,	58	2·25 and	1·90
" Pottsville "	34	1·40 and	1·20

Five minutes allowed at Reading; and three at other way stations.

Passenger Depot in Philadelphia corner of Broad and Vine streets. 8tf

LEXINGTON AND OHIO RAILROAD. Trains leave Lexington for Frankfort daily, at 5 o'clock a.m., and 2 p.m. Trains leave Frankfort for Lexington daily, at 8 o'clock a.m. and 2 p.m. Distance, 28 miles. Fare $1·25.

On Sunday but one train, 5 o'clock a.m. from Lexington, and 2 o'clock p.m. from Frankfort.

The winter arrangement (after 15th September to 15th March) is 6 o'clock a.m. from Lexington, and ma. 9. from Frankfort, other hours as above. 351y

BOSTON AND MAINE RAILROAD. Upper Route, to Portland and the East.

SUMMER ARRANGEMENT, April 1, 1847.

PORTLAND TRAINS.
Leave Boston at 7 A.M. and 2½ P.M.
Leave Portland at 7½ A.M. and 3 P.M.

GREAT FALLS TRAIN.
Leave Boston at 5 P.M.
Leave Great Falls at 6½ A.M.

HAVERHILL TRAINS.
Leave Boston at 11½ A.M. and 6·20 P.M.
Leave Haverhill at 6½ A.M. and 4½ P.M.

READING TRAINS.
Leave Boston at 8½ A.M. and 8½ P.M.
Leave Reading at 6 A.M. and 1½ P.M.

MEDFORD BRANCH TRAINS.
Leave Boston at 7½, 11½ A.M., 2½, 5½, 7 P.M.
Leave Medford at 6½, 8 A.M., 1½, 4½, 6 P.M.

The Depot in Boston is on Haymarket Square.

Passengers are not allowed to carry Baggage above $50 in value, and that *personal*, unless notice is given, and an extra amount paid, at the rate of the price of a Ticket for every $500 additional value.

1y31 CHAS. MINOT, *Sup't.*

SUMMER ARRANGEMENT.—NEW YORK AND ERIE RAILROAD LINE, from April 1st until further notice, will run daily (Sundays excepted) between the city of New York and Middletown, Goshen, and intermediate places, as follows:

FOR PASSENGERS—
Leave New York at 7 A.M. and 4 P.M.
" Middletown at 6½ A.M. and 5½ P.M.

FARE REDUCED to $1 25 to Middletown—way in proportion. Breakfast, supper and berths can be had on the steamboat.

FOR FREIGHT—
Leave New York at 5 P.M.
" Middletown at 12 M.

The names of the consignee and of the station where to be left, must be distinctly marked upon each article shipped. Freight not received after 5 P.M. in New York.

Apply to J. F. Clarkson, agent, at office corner of Duane and West sts. H. C. SEYMOUR, Sup't.
March 25th, 1846.

Stages run daily from Middletown, on the arrival of the afternoon train, to Milford, Carbondale, Honesdale, Montrose, Towanda, Owego, and West; also to Monticello, Windsor, Binghamton, Ithaca, etc., etc. Agent on board. 13tf

NORWICH AND WORCESTER RAILROAD. Summer Arrangement. Change of Hours. Commencing on Wednesday, April 21, 1847.

Accommodation Trains, daily, (except Sunday.) Leave Norwich, at 6 a.m., and 4½ p.m. Leave Worcester, at 8½ a.m., and 4½ p.m.

☞ The morning Accommodation Trains from Norwich, and from Worcester, connect with the trains of the Boston, and Worcester and Western railroads each way.

The Evening Accommodation Train from Worcester connects with the 2½ p.m. train from Boston.

New York Train via Steamboat—Leave Norwich for Boston, every morning, except Monday, on the arrival of the stamboat from New York, stopping at Norwich and Danielsonville.

Leave Worcester for New York, upon the arrival of the train from Boston, at about 6½ p.m., daily, except Sunday, stopping at Danielsonville and Norwich.

Freight Trains daily each way, except Sunday.—Leave Norwich at 7, and Worcester at 6 30 a. m. Special contracts will be made for cargoes, or large quanties of freight, on application to the superintendent.

☞ *Fares are Less when paid for Tickets than when paid in the Cars.* ☜

32 1y J W. STOWELL, Sup't.

LITTLE MIAMI RAILROAD.—OPEN TO SPRINGFIELD—Distance 84 miles— connecting at Xenia and Springfield with Messrs. Neil, Moore, & Co's. daily daylight lines of stages going east and north, to Columbus, Zanesville, Wheeling, Cleveland, and Sandusky City. via Urbana, Bellefontaine, Kenton, and the Mad river and lake Erie railroad, or Columdus, Delaware, and the Mansfield and Sundusky City railroad—forming, by these connections, the cheapest and most expeditious route to Buffalo, Niagara Falls, Rochester, Albany, New York, and Boston.

On and after Thursday, August 13, 1846, until further notice, a Passenger train will run as fllows:

Leave Cincinnati daily at 9 A. M., for Milford, Foster's Crossing, Deerfield, Morrow, Fort Ancient, Freeport, Waynesville, Spring Valley, Xenia, Old Town, Yellow Springs, and Springfield.

Returning, will leave Springfield at 4 hours 35 minutes A. M. A line of Hacks runs in connection with the Cars, between Deerfield and Lebanon.

Fare—From Cincinnati to Lebanon	....	$1	00
" " " Xenia	.....	1	50
" " " Springfield	..	2	00
" " " Columbus	...	4	00
" " " Sundusky city	8	00	

The Passenger trains runs in connection with Strader & Gorman's line of Mail Packets to Louisville.

Tickets can be procured at the Broadway Hotel, Dennison House, or at the Depot of the Company, on East Front street.

Further information and through tickets for the Stage lines, may be procured at P. Campbell, Agent on Front street, near Broadway.

The company will not be responsible for baggage beyond 50 dollars in value, unless the same is returned to the conductor or agent, and freight paid at of a passage for every $500 in value over that amount.

The 1½ P. M. train from Cincinnati, and the 2 40 P. M. train from Xenia, will be discontinued on and after Monday, the 10th instant.

A freight train will run daily.

47tf W. H. CLEMENT, *Sup't.*

BALTIMORE AND OHIO RAILROAD. MAIN STEM. The Train carrying the Great Western Mail leaves Baltimore every morning at 7½ and Cumberland at 8 o'clock, passing Ellicott's Mills, Frederick, Harpers Ferry, Martinsburgh and Hancock, connecting daily each way with—the Washington Trains at the Relay House seven miles from Baltimore, with the Winchester Trains at Harpers Ferry — with the various railroad and steamboat lines between Baltimore and Philadelphia and with the lines of Post Coaches between Cumberland and Wheeling and the fine Steamboats on the Monongahela Slack Water between Brownsville and Pittsburgh. Time of arrival at both Cumberland and Baltimore 5½ P. M. Fare between those points $7, and 4 cents per mile for less distances. Fare through to Wheeling $11 and time about 36 hours, to Pittsburgh $10, and time about 32 hours. Through tickets from Philadelphia to Wheeling $13, to Pittsburgh $12. Extra train daily except Sundays from Baltimore to Frederick at 4 P. M., and from Frederick to Baltimore at 8 A. M.

WASHINGTON BRANCH.

Daily trains at 9 A. M. and 5 P. M. and 12 at night from Baltimore and at 6 A. M. and 5½ P. M from Washington, connecting daily with the lines North, South and West, at Baltimore, Washington and the Relay house. Fare $1 60 through between Baltimore and Washington, in either direction, 4 cents per mile for intermediate distances. s13y1

MANUFACTURE OF PATENT WIRE Rope and Cables for Inclined Planes, Standing Ship Rigging, Mines, Cranes, Tillers etc., by JOHN A. ROEBLING, *Civil Engineer*, Pittsburgh, Pa.

These Ropes are in successful operation on the planes of the Portage Railroad in Pennsylvania, on the Public Slips, on Ferries and in Mines. The first rope put upon Plane No. 3, Portage Railrord, has now run 4 seasons, and is still in good condition. 2v19 1y

BALTIMORE AND SUSQUEHANNA Railroad.—Reduction of Fare. Morning and Afternoon Trains between Baltimore and York.—The Passenger trains run daily, except Sunday, as follows:

Leaves Baltimore at	.....	9	a.m. and 3½ p.m.
Arrives at	.....	9	a.m. and 6½ p.m.
Leaves York at	.....	5	a.m. and 3 p.m.
Arrives at	.....	12½	p.m. and 8 p.m.
Leaves York for Columbia at	..	1½	p.m. and 8 a.m.
Leaves Columbia for York at	..	8	a.m. and 2 p.m.

FARE.

Fare to York	.....	$1	50
" Wrightsville	.....	2	00
" Columbia	.....	2	12½

Way points in proportion.

PITTSBURG, GETTYSBURG AND HARRISBURG.

Through tickets to Pittsburg via stage to Harrisburg	$9
Or via Lancaster by railroad	10
Through tickets to Harrisburg or Gettysburg	3

In connection with the afternoon train at 3½ o'clock, a horse car is run to Green Spring and Owing's Mill, arriving at the Mills at ..... 5½ p.m.
Returning, leaves Owing's Mills at ..... 7 a.m.

D. C. H. BORDLEY, *Sup't.*
31 1y Ticket Office, 63 North st.

CENTRAL RAILROAD—FROM SAVANnah to Macon. Distance 190 miles. This Road is open for the transportation of Passengers and Freight. Rates of Passage, $8 00. Freight—

On weight goods generally	50 cts. per hundred.
On measurement goods	13 cts. per cubic ft.
On brls. wet (except molasses and oil)	$1 50 per barrel.
On brls. dry (except lime)	80 cts. per barrel.
On iron in pigs or bars, castings for mills, and unboxed machinery	40 cts. per hundred.
On hhds. and pipes of liquor, not over 120 gallons	$5 00 per hhd.
On molasses and oil	$6 00 per hhd.

Goods addressed to F. WINTER, Agent, forwarded free of commission. THOMAS PURSE,
y40 Gen'l. Sup't. Transportation.

NEW YORK & HARLEM RAILROAD CO.—Winter Arrangement.

On and after Monday, November 23, 1846, the cars will run as follows:

Leave 27th street for 42d street, Deaf and Dumb Institute, Yorkville, Harlem Morrianna, and Williams' Bridge, at 7 o'clock a.m. From City Hall for above named places, 2 p.m. [freight train,] 2 30 p.m. 5 p.m. to Morrisiania only.

Leave City Hall for Harlem, Morrisiania, Fordham and Williams' Bridge, at 7 45 a.m., and 10 45 a.m.; 1 15 p.m., 2 p.m. [freight train], 2 30 p.m. and 3 45 p.m.

Leave City Hall for Hunt's Bridge, Bronx, Tuckahoe, Hart's Corners White Plains, Davis' Brook, Unionville and Pleasantville, [Pleasantville 4 miles from Sing Sing,] 7 45 and 10 45 a.m.; 1 15 p.m., 2 p.m. [freight train], and 3 45 p.m.

RETURNING.

Leave Pleasantville, at 8, 10, [freight train], and 11, a.m.; 1 30, and 4, p.m.

Leave White Plains, at 8 12, 10 30, [freight train] and 11 20 a.m.; 1 50, and 4 20, p.m.

Leave Tuckahoe, 8 35, 10 55, [freight train,] and 11 35, a.m.; 2 05, and 4 35, p.m.

Leave Williams' Bridge at 7 45, 8 50 and 11 50 a.m.; 2 20, 4, and 4 50 p.m.

Leave Morrisiania 8 and 9 05 a.m.; 12 05, 2 35, 4 20, 5 05 and 6 p.m.

Leave Yorkville, at 8 12 a.m.; 4 35 and 6 15 p.m.

SUNDAY ARRANGEMENTS.

Leave City Hall for Pleasantville and intermediate places, at 7 45 a.m.; 1 15 and 3 p.m.

Leave Pleasantville for City Hall, at 8 a.m.; 11, and 3 15 p.m.

Leave City Hall for Williams' Bridge and intermediate places, 10 45 a.m.; 2 30 p.m.

Leave Williams' Bridge for City Hall, at 8 50 and 11 50 a.m.; 1, 3 45 and 4 05 p.m. 1y45

PHILADELPHIA, WILMINGTON & BALTIMORE RAILROAD.—1847.

Winter Arrangement.

Philadelphia for Baltimore...8 a.m. and 4 p.m.
Baltimore for Philadelphia...9 a.m. and 8 p.m.

Connecting in Baltimore with Mail Lines south and west, as per notice of the Baltimore and Ohio Railroad—and with Mail Lines north from Philadelphia, both morning and afternoon.

Sundays, the *Morning* Lines do not run in either direction.

Accommodation train from Wilmington to Philadelphia, leaves Wilmington at 8 a.m., and returns at 2 p.m. J. R. TRIMBLE,
2tf *Engineer and General Superintendent.*

GEORGIA RAILROAD. FROM AUGUSTA to ATLANTA—171 MILES. AND WESTERN AND ATLANTIC RAILROAD FROM ATLANTA TO OOTHCALOGA, 80 MILES.

This Road in connection with the South Carolina Railroad and Western and Atlantic Railroad now forms a continuous line, 388 miles in length, from Charleston to Oothcaloga on the Oostenaula River, in Cass Co., Georgia.

RATES OF FREIGHT.

		Between Augusta and Oothcaloga, and Dalton. 250 miles.	Between Charleston, Oothcaloga, and Dalton. 386 miles.
1st class.	Boxes of Hats, Bonnets, and Furnature, per cubic foot	$0 16	$0 26
2d class.	Boxes and Bales of Dry Goods, Sadlery, Glass, Paints, Drugs and Confectionary, per 100 lbs.	1 00	1 50
3d class.	Sugar, Coffee, Liquor, Bagging, Rope, Cotton Yarns, Tobacco, Leather, Hides, Copper, Tin, Feathers, Sheet Iron, Hollow Ware, Castings, Crockery, etc.	0 60	0 85
4th class.	Flour, Rice, Bacon, Pork, Beef, Fish, Lard, Tallow, Beeswax, Bar Iron, Ginseng, Mill Gearing, Pig Iron, and Grindstones, etc	0 45	0 70
	Cotton, per 100 lbs.	0 45	0 65
	Molasses, per hogshead.	8 50	13 50
	" " barrel	2 00	3 25
	Salt per bushel	0 17	
	Salt per Liverpool sack		95
	Ploughs, Corn Shellers, Cultivators, Straw Cutters, Wheelbarrows	0 75	1 37

German or other emigrants, in lots of 20 or more, will be carried over the above roads at 2 cents per mile.

Goods consigned to S. C. Railroad Co. will be forwarded free of commissions. Freight may be paid at Augusta, Atlanta, or Oothcaloga.

J. EDGAR THOMSON,
Ch. Eng. and Gen. Agent.
Augusta, Sept. 2d, 1846. *44 1y

THE WESTERN AND ATLANTIC Railroad.—This Road is now in operation to Oothcaloga, a distance of 80 miles, and connects daily (Sundays excepted) with the Georgia Railroad.

From Kingston, on this road, there is a tri-weekly line of stages, which leave on the arrival of the cars on Tuesday, Thursday and Saturday, for Warrenton, Huntsville, Decatur and Tuscumbia, Alabama, and Memphis, Tennessee.

On the same days, the stages leave Oothcaloga for Chattanooga, Jasper, Murfreesborough, Knoxville and Nashville, Tennessee.

This is the most expeditious route from the east to any of these places.

CHAS. F. M. GARNETT,
Chief Engineer.
Atlanta, Georgia, April 16th, 1846. 1y1

CENTRAL AND MACON AND WESTERN Railroads, Ga.—These Roads with the Western and Atlantic Railroad of the State of Georgia, form a continuous line from Savannah to Oothcaloga, Ga., of 371 miles, viz:

	Miles.
Savannah to Macon—Central Railroad	190
Macon to Atlanta—Macon and Western	101
Atlanta to Oothcaloga—Western and Atlantic	80

Goods will be carried from Savannah to Atlanta and Oothcaloga, at the following rates, viz:

	To Atlanta.	To Oothcaloga.
On Weight Goods—Sugar, Coffee, Liquor, Bagging, Rope, Butter, Cheese, Tobacco, Leather, Hides, Cotton Yarns, Copper, Tin, Bar & Sheet Iron, Hollow Ware & Castings	$0 50	$0 75
Flour, Rice, Bacon in Casks or boxes, Pork, Beef, Fish, Lard, Tallow, Beeswax, Mill Gearing, Pig Iron and Grind Stones	0 50	0 62½
On Measurement Goods—Boxes of Hats, Bonnets and Furniture, per cubic foot	0 20	0 26
Boxes and Bales of Dry Goods, Saddlery, Glass, Paints, Drugs and Confectionary, per cubic foot	0 20 pr. 100 lbs.	35
Crockery, per cubic foot	0 15 " "	35
Molasses and Oil, per hhd., (smaller casks in proportion).	9 00	12 50
Ploughs, (large,) Cultivators, Corn Shellers, and Straw Cutters, each	1 25	1 50
Ploughs, (small,) and Wheelbarrows	0 80	1 05
Salt, per Liverpool Sack	0 70	0 95

Passage—Savannah to Atlanta, $10; Children, under 12 years of age, half price, Savannah to Macon, $7.

☞ Goods consigned to the subscriber will be forwarded free of Commissions.

☞ Freight may be paid at Savannah, Atlanta or Oothcaloga.

F. WINTER, *Forwarding Agent, C. R. R.*
Savannah, Aug. 15th, 1846. 1y34

GREAT SOUTHERN MAIL LINE! VIA Washington city, Richmond, Petersburg, Weldon and Charleston, S. C., direct to New Orleans. The only Line which carries the Great Southern Mail, and Twenty-four Hours in advance of Bay Line, leaving Baltimore same day.

Passengers leaving New York at 4½ P.M., Philadelphia at 10 P.M., and Baltimore at 6½ A.M., proceed without delay at any point, by this line, reaching Richmond in *eleven*, Petersburg in *thirteen and a half hours*, and Charleston, S. C., in *two days* from Baltimore.

Fare from Baltimore to Charleston.....$21 00
" " " Richmond..... 6 60

For Tickets, or further information, apply at the *Southern Ticket Office*, adjoining the *Washington Railroad Office*, Pratt street, Baltimore, to
1y14 STOCTON & FALLS, Agents.

RAILROAD SCALES.—THE ATTENTION of Railroad Companies is particularly requested to Ellicotts' Scales, made for weighing loaded cars in trains, or singly, they have been the inventors, and the first to make platform scales in the United States; supposing that an experience of **20** years has given a knowledge and superior advantage in the business.

The levers of our scales are made of wrought iron, all the bearers and fulcrums are made of the best cast steel, laid on blocks of granite, extending across the pit, the upper part of the scale only being made of wood. E. Ellicott has made the largest Railroad Scale in the world, its extreme length was one hundred and twenty feet, capable of weighing ten loaded cars at a single draft. It was put on the Mine Hill and Schuylkill Haven Railroad.

We are prepared to make scales of any size to weigh from five pounds to two hundred tons.

ELLICOTT & ABBOTT.
Factory, 9th street, near Coates, cor. Melon st.
Office, No. 3 North 5th street,
1y25 Philadelphia, Pa.

SOUTH CAROLINA RAILROAD.—A Passenger Train runs daily from Charleston, on the arrival of the boats from Wilmington, N. C., in connection with trains on the Georgia, and Western and Atlantic Railroads—and by stage lines and steamers connects with the Montgomery and West Point, and the Tuscumbia Railroad in N. Alabama.

Fare through from Charleston to Montgomery daily $26 50
Fare through from Charleston to Huntsville, Decatur and Tuscumbia..... 22 00

The South Carolina Railroad Co. engage to receive merchandize consigned to their order, and to forward the same to any point on their road; and to the different stations on the Georgia and Western and Atlantic railroad; and to Montgomery, Ala., by the West Point and Montgomery Railroad.
1y25 JOHN KING, Jr, *Agent.*

TO RAILROAD COMPANIES AND MANUFACTURERS of railroad Machinery. The subscribers have for sale Am. and English bar iron, of all sizes; English blister, cast, shear and spring steel; Juniata rods; car axles, made of double refined iron; sheet and boiler iron, cut to pattern; tiers for locomotive engines, and other railroad carriage wheels, made from common and double refined B. O. iron; the latter a very superior article. The tires are made by Messrs. Baldwin & Whitney, locomotive engine manufacturers of this city. Orders addressed to them, or to us, will be promptly executed.

When the exact diameter of the wheel is stated in the order, a fit to those wheels is guaranteed, saving to the purchaser the expense of turning them out inside. THOMAS & EDMUND GEORGE,
a45 N. E. cor. 12th and Market sts., Philad., Pa.

RAILROAD IRON.—THE "MONTOUR Iron Company," Danville, Pa., is prepared to execute orders for the heavy Rail Bars of any pattern now in use, in this country or in Europe, and equal in every respect in point of quality. Apply to MURDOCK, LEAVITT & CO.,
Agents.
1y48 77 Pine St., New York.

LAWRENCE'S ROSENDALE HYDRAULIC Cement. This cement is warranted equal to any manufactured in this country, and has been pronounced superior to Francis' "Roman." Its value for Aqueducts, Locks, Bridges, Flooms and all Masonry exposed to dampness, is well known, as it sets immediately under water, and increases in solidity for years.

For sale in lots to suit purchasers, in tight papered barrels, by JOHN W. LAWRENCE,
142 Front street, New York.

☞ Orders for the above will be received and promptly attended to at this office. 32 1y

A. & G. RALSTON & CO., NO. 4 South Front St., Philadelphia, Pa.

Have now on hand, for sale, Railroad Iron, viz:
180 tons 2½ x ½ inch Flat Punched Rails, 20 ft. long.
25 " 2½ x ½ " Flange Iron Rails.
75 " 1 x ½ " Flat Punched Bars for Drafts in Mines. A full assortment of Railroad Spikes, Boat and Ship Spikes. They are prepared to execute orders for every description of Railroad Iron and Fixtures. 1tf

LOCOMOTIVE AND CAR AXLES. The Subscribers are now prepared to receive orders for the well known and approved *Reading Locomotive and Car Axles*—drawn to any required pattern from *Bloom Iron only.* Address
SAM'L KIMBER & CO.,
Willow Street Wharf,
4tf Philadelphia, Pa.

BACK VOLUMES OF THE RAILROAD JOURNAL for sale at the office, No. 105 Chestnut street.

RAILROAD IRON.—THE NEW JERSEY Iron Company, Boonton, N. J., are now preparing to make Railroad Bars, and are ready to take orders or make contracts for Rails, deliverable after the first of December next. Apply to
FULLER & BROWN, Agent,
No. 139 Greenwich, corner of Cedar street.
September 18, 1846. 10t39

RAILROAD IRON.—THE SUBSCRIBER'S New Rail Iron Mill at Phœnixville, Pa., is expected to be ready to go into operation by the 1st of September, and will be capable of turning out 30 to 40 tons of finished Rails per day. They are now prepared to receive orders to that extent, deliverable after the 1st of Octobet next, for heavy rails of any pattern now in use, equal in quality and finish to best imported.

PIG IRON.—They are also receiving weekly 150 to 200 tons of No. 1 Phœnix Foundry Iron, well adapted for light castings.

REEVES, BUCK & CO,
45 North Water St., Philadelphia,
or by their Agent, ROBT. NICHOLS,
28tf 79 Water St., New York

NICOLL'S PATENT SAFETY SWITCH for Railroad Turnouts. This invention, for some time in successful operation on one of the principal railroads in the country, effectually prevents engines and their trains from running off the track at a switch, left wrong by accident or design.

It acts independently of the main track rails, being laid down, or removed, without cutting or displacing them.

It is never touched by passing trains, except when in use, preventing their running off the track. It is simple in its construction and operation, requiring only two Castings and two Rails; the latter, even if much worn or used, not objectionable.

Working Models of the Safety Switch may be seen at Messrs. Davenport and Bridges, Cambridgeport, Mass., and at the office of the Railroad Journal, New York.

Plans, Specifications, and all information obtained on application to the Subscriber, Inventor, and Patentee. G. A. NICOLLS,
ja45 *Reading, Pa.*

THE SUBSCRIBERS, AGENTS FOR the sale of Codorus, Glendon, Spring Mill and Valley, } Pig Iron.

Have now a supply, and respectfully solicit the patronage of persons engaged in the making of Machinery, for which purpose the above makes of Pig Iron are particularly adapted.

They are also sole Agents for Watson's celebrated Fire Bricks and prepared Kaolin or Fire Clay orders for which are promptly supplied.

SAM'L. KIMBER, & CO.,
59 North Wharves,
Jan. 14, 1846. [1y4] *Philadelphia, Pa.*

RAILWAY IRON.—THE BEST QUALITY of English Heavy H Rails—60 lbs. to the yard—now in store, landing from the vessel, and on ship board to arrive, for sale on most favorable terms by
DAVIS, BROOKS & CO.,
Jan. 2. [1tf] 68 Broad St., New York.

RAILWAY IRON.—DAVIS, BROOKS & Co., No. 68 Broad Street, have now in port on Ship-board, 200 Tons of the best English heavy H Rails, 60 lbs. to the lineal yard, which they offer for sale on favorable terms, *also*, about 600 to 700 Tons now on the way, to arrive shortly, of the same description of Rail. 46tf

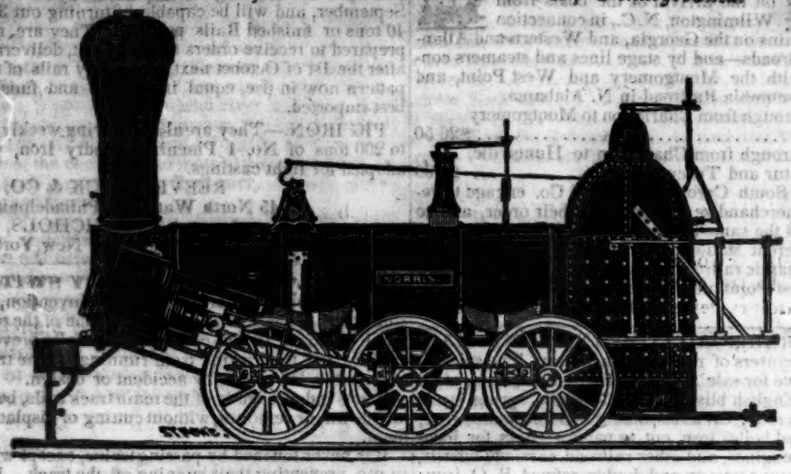
PIG AND BLOOM IRON.—THE SUBSCRIBERS are agents for the sale of numerous brands of Charcoal and Anthracite Pig Iron, suitable for Machinery, Railroad Wheels, Chains, Hollow ware etc. Also several brands of the best Puddling Iron, Juniatta Blooms suitable for Wire, Boiler Plate, Axe Iron, Shovels, etc. The attention of those engaged in the manufacture of Iron is solicited by
A. WRIGHT & NEPHEW,
12tf Vine St. Wharf, Philadelphia.

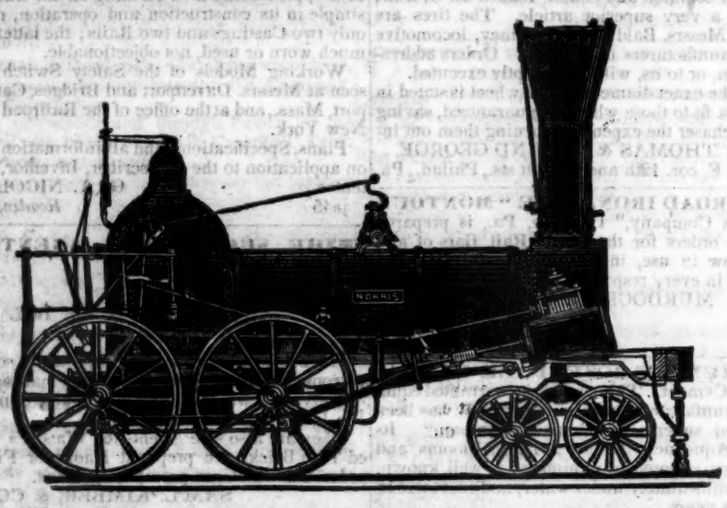
THE SUBSCRIBER IS PREPARED TO execute at the Trenton Iron Works, orders for Railroad Iron of any required pattern, and warranted equal in every respect in point of quality to the best American or imported Rails. Also on hand and made to order, Bar Iron, Braziers' and Wire Rods, etc., etc.

PETER COOPER 17 Burling Slip.
1y10 New York.

NORRIS' LOCOMOTIVE WORKS.

BUSH HILL, PHILADELPHIA, *Pennsylvania.*





MANUFACTURE their Patent 6 Wheel Combined and 8 Wheel Locomotives of the following descriptions, viz:

Class	1,	15	inches	Diameter of	Cylinder,	× 20	inches	Stroke.
"	2,	14	"	"	"	× 24	"	"
"	3,	14½	"	"	"	× 20	"	"
"	4,	12½	"	"	"	× 20	"	"
"	5,	11½	"	"	"	× 20	"	"
"	6,	10½	"	"	"	× 18	"	"

With Wheels of any dimensions, with their Patent Arrangement for Variable Expansion.

Castings of all kinds made to order: and they call attention to their Chilled Wheels, for the Trucks of Locomotives, Tenders and Cars.

NORRIS, BROTHERS.

KEARNEY FRIE BRICK. F. W. BRINLEY, Manufacturer, Perth Amboy, N. J. Guaranteed equal to any, either domestic or foreign. Any shape or size made to order. Terms, 4 mos. from delivery of brick on board. Refer to

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25,000 to 30,000 made weekly. 35

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Mar. 20tf 4 South Front St., Philadelphia.

VALUABLE PROPERTY ON THE MILL Dam For Sale. A lot of land on Gravelly Point, so called, on the Mill Dam, in Roxbury, fronting on and east of Parker street, containing 68,497 square feet, with the following buildings thereon standing.

Main brick building, 120 feet long, by 46 ft wide, two stories high. A machine shop, 47x43 feet, with large engine, face, screw, and other lathes, suitable to do any kind of work.

Pattern shop, 35x32 fe, with lathes, work benches,

Work shop, 86x35 feet, on the same floor with the pattern shop.

Forge shop, 118 feet long by 44 feet wide on the ground floor, with two large water wheels, each 16 feet long, 9 ft diameter, with all the gearing, shafts, drums, pulleys, &c., large and small trip hammers, furnaces, forges, rolling mill, with large balance wheel and a large blowing apparatus for the foundry.

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Store house—a range of buildings for storage, etc., 200 feet long by 20 wide.

Locomotive shop, adjoining main building, fronting on Parker street, 54x25 feet.

Also—A lot of land on the canal, west side o Parker st., containiug 6000 feet, with the following buildings thereon standing:

Boiler house 50 feet long by 30 feet wide, two stories.

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PASCAL IRON WORKS.

WELDED WROUGHT IRON TUBES

From 4 inches to ¼ in calibre and 2 to 12 feet long, capable of sustaining pressure from 400 to 2500 lbs. per square inch, with Stop Cocks, T, L, and other fixtures to suit, fitting together, with screw joints, suitable for STEAM, WATER, GAS, and for LOCOMOTIVE and other STEAM BOILER Flues.

Manufactured and for sale by

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TO LOCOMOTIVE AND MARINE Engine Boiler Builders. Pascal Iron Works, Philadelphia. Welded Wrought Iron Flues, suitable for Locomotives, Marine and other Steam Engine Boilers, from 2 to 5 inches in diameter. Also, Pipes for Gas, Steam and other purposes; extra strong Tube for Hydraulic Presses; Hollow Pistons for Pumps of Steam Engines, etc. Manufactured and for sale by

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PATENT INDESTRUCTIBLE WATER Pipes. The subscribers continue to manufacture the above Pipes, of all the sizes and strength required for City or Country use, and would invite individuals or companies to examine its merits.—This pipe, unlike cast iron and lead, imparts neither color, oxide or taste, being formed of strongly riveted sheet iron, and evenly lined on the inside with hydraulic cement. While in the process of laying, it has a thick covering externally of the same—thus forming nature's own conduit of stone. The iron being thoroughly enclosed on both sides with cement, precludes the possibility of rust or decay, and renders the pipe truly *indestructible*. The prices are less than those of iron or lead. We also manufacture Basons and D. Traps, for Water Closets, on a new principle, which we wish the public to examine at 112 Fulton street, New York.

28tf J. BALL & CO.

Crampton's Locomotives.

We have copied several brief notices, from the London journals, of Mr. Crampton's improved engines. We now give Mr. C.'s own statement, in relation to the "Namur," the only one yet completed. This may be considered official, as it was made to the "Society of Arts," on the 31st March; and it should be read by all who are directly interested in the improvement of this wonderful machine.

Society of Arts.—March 31.—Wm. Pole, Esq., F.R.S., Vice President, in the chair.—Mr. Crampton gave the following account of the performance of the large wheel narrow gauge engine, "Namur," on the London and Northwestern. The Society will doubtless recollect that I had the honor of receiving a gold medal from them last year for the invention of a new locomotive engine supposed to possess certain advantages; and as this society agreed with me before it was executed, I conceive them entitled to every information on the subject, in order that they may ascertain whether their judgment was correct.—We are all aware how extremely easy it is to give an opinion after trials, but not so before them. During the discussion last year, I professed to obtain the following advantages in a locomotive engine for the narrow gauge, viz: the rocking and vibrating action to be reduced by lowering its centre of gravity, and by confining nearly the whole weight between the supports: the centre of gravity not being influenced by the size of the driving wheel, the advantages resulting from large wheels are consequently secured; four, six or eight wheels may be used, the working arrangements remaining the same; from the superior or low position of the boiler, facilities are given for increasing the heating surface to an extent of at least 2000 feet, and the centre of gravity not injuriously affected thereby, whatever the size of driving wheel; that the arrangement of the machinery is such that the driver can at all times see it at work, and the repairs can be more easily done in consequence of the men not having to get under the engine for that purpose; that the driving wheel being behind the fire-box is in the best place to secure adhesion and steadiness. That the foregoing improvements can be obtained without necessarily altering the proportion found to give the best effect in ordinary engines, consequently every engineer can carry out his own proportion of parts, still keeping the principle of the machine. Having stated what I professed to do last year, I will endeavor to show that so far as I am able to judge, I have every reason to be satisfied with the result, and I do believe that had I not succeeded with the first engine, I should not have been condemned without another trial, as all practical men are aware that a first machine of any kind is rarely perfect. The "Namur" is a six wheeled engine, with the whole of the working parts outside:

	Ft.	In.
Diameter of driving wheel,	7	
Do. supporting do.	3	9
Distance between centre of extreme wheels,	13	
Diameter of cylinder,		16
Length of stroke,		20
No. of tubes,	183	
Length of tubes,	11	
Diameter of do. outside,		2
Length of fire box,	4	3
Breadth of do.,	3	5
Area of fire grate,	14	6
Surface in fire box,	62	
Surface of tubes inside,	927	
Total surface,	989	

It should be observed that the total surface is less than in many engines on the London and Northwestern. This engine is one of two ordered by Mr. George Rennie for the directors of the Namur and Liege, Belgium, which gentlemen I have to thank for their kindness in allowing it to be tried before leaving the country, and I am happy in being able to state that they have expressed themselves perfectly satisfied. I am also indebted to the directors of the London and Northwestern for the opportunity afforded me of running their trains with the engine. I conceive it due to the manufacturers of the engine, Messrs. Tulk & Ley, of Whitehaven, to state that the workmanship of the engine is equal to anything I ever saw. With these remarks I will endeavor to show to what extent my views have been realized. The "Namur" has been completed about six or seven weeks, and has run a distance of about 2,300 miles, and in no instance has any vital part been disarranged, and only in one instance had we occasion to stop, which was in consequence of a pump joint giving way; and out of these 2300 miles about 1700 were run on the London and Northwestern with express, mail, first class, second class, third class, coke and goods trains—in fact every variety of train taken by other engines on the Northwestern, and only in one instance, before alluded to, did we not arrive before the time, varying from two to eleven minutes at each station, i.e., we gained time to that extent between each station, it being the custom to stop any train arriving at a station before the time stated in the bills. This performance I judge to be conclusive as regards its capabilities of doing all the work in a satisfactory manner on the London and Northwestern at the present time. A train of coke in trucks was taken from Camden Town to Wolverton weighing 80 tons exclusive of engine and tender. During this trip we reached a speed on a level, of 51 miles per hour. The time was taken by Mr. W. Harding. On another occasion, while taking the 12 noon train from London, weighing about 50 tons, exclusive of engine, we attained a speed of 62 miles per hour between Tring and Wolverton; on this occasion we arrived at Wolverton eleven minutes before the time. During these trips I have had a number of engineers and scientific men on the engine, and in no instance has a remark been made that the engine was unsteady; but I may say, in all cases they have stated the engine to be quite steady at a speed of 60 miles per hour. The most severe test an engine can be put to is when it has no train behind it. We tried an experiment of this kind, with Capt. Coddington, the inspector general of railways, and Capt. Simmonds his assistant, upon the engine, and arrived at a speed of 74 miles per hour, on a level, going round a curve between London and Harrow.

The speed was taken by Captain Coddington, who expressed himself, as well as Capt. Simmonds, perfectly satisfied with its steadiness at that rate of speed. In fact, no person has ever been able to discover any difference in its motion, whether going at 20 or 75 miles per hour, so far as regards the internal motion of the engine, although attention has invariably be directed to ascertain it; the only difference being a greater lurch upon any inequality of the road, but any lurch given by this means subsided immediately upon passing the place causing it. This lurching in ordinary engines, with the centre of gravity high, and heavy overhanging weights, causes the engine to vibrate from one side of the rails to the other, in many cases to a frightful extent. I believe therefore that the evidence is sufficient to enable me to state that I have succeeded in producing a locomotive engine with large driving wheels and outside cylinders sustaining perfect steadiness at high speeds, or at 75 miles per hour. The second proposition, the centre of gravity, etc., I think is evidently correct, which may be easily seen by referring to the drawing, accompanied with the fact of an engine being at work upon the plan. The third proposition is also, I think, evident to all persons acquainted in the least with the subject. The fourth proposition can only be proved by the engine being made and at work, so that it may speak for itself. There is one thing certain, that an engine containing about 1600 feet of surface is nearly completed for the Northwestern, with 8 feet driving wheels, 18 in. cylinder, and 20 in. stroke, and 23 feet of fire box; the appearance of which is precisely the same as the "Namur." With respect to the power being increased to 2000 ft., that that will be a difficult matter to show in a paper of this kind; but I have not the least doubt of producing an engine on the narrow gauge with double that surface if required; in fact, I believe that an engine may be made for the narrow gauge of any conceivable dimensions; at the same time I do not believe that engines of such magnitude can be used practically on any gauge. The fifth proposition I conceive to be of the greatest importance; it will be seen that the whole of the excentrics, valve, gear, and every other moving part can be reached from the foot plates, enabling the driver to oil the parts when required, as well as see whether all is going on correctly, and prevent a total derangement which might occur, when too late, with the machinery under the boiler; also when repairs are required, the difficulty of getting at the parts in ordinary engines necessarily keep the engine in the shop a longer time than would be required for the same repairs in my engine, where the men can stand to do all that is required. There is no part requiring attention inside the boiler. Sixth, the regulator ordinarily put inside the boiler, or in the smoke box, is so placed that a man can stand on the ground and do anything that may be required. The slide valve is also in the same position. I attach great importance to these points, for the following reasons:—that an engine requiring a certain amount of repair can be done in less time with the ma-

chinery in a convenient position, as in my engine, consequently a railway company may do their work with fewer engines. A more striking proof of the superiority of this is shown by the fact that superintendents will not crawl under a dirty engine to see whether the men have done their work properly. We cannot but expect that many things are improperly finished; but where a superintendent can walk round an engine and see all the machinery without trouble, the men cannot, if so disposed, neglect their work without being discovered. There is another very important point connected with this arrangement of the machinery being outside, and which I have seen exemplified, viz: that of cleaning the engine, which has to be done daily. The cleaners, instead of having to stoop and put themselves in all kinds of shapes as is required to clean ordinary engines, can stand to their work in mine. I have made some inquiries upon this point, and find that four men and two boys will clean my engine better in the same time than six men and two boys will clean the ordinary engines. These advantages may appear trifling at first sight, but when we take into consideration the vast outlay on railways for locomotive plant, anything tending to diminish it, as well as labor, may fairly be looked upon as a matter worthy of attention. Seventh, that the driving wheel being behind the fire box is the *best place to secure adhesion* and steadiness. There are many engineers who prefer the driving wheels in the centre, but I must confess it never appeared preferable to me. I attribute a great portion of the steadiness of the Namur to the fact of the driving wheel being behind the fire box, and for these reasons: an engine when running fast requires a certain amount of weight on the leading wheels to keep it to the rails, and the driving wheels still more weight for adhesion to prevent slipping;—these wheels, the leading and driving, being at the extremities of the machine, can have the maximum weight put on them with perfect safety, by taking the whole weight off the centre wheels; for instance, the Namur weighs about 22 tons when running; if we support the engine on the extreme wheels the drivers will have 13 tons and the leading wheels 9 tons, and by putting 4 tons on the centre wheels the drivers will have about 10½ tons and the leading wheels 7½ on them, which weight is required for the proper working of the engine. It will be I think evident that, in the event of the road being in bad order, neither the leading nor driving wheels will be acted upon injuriously by the centre wheels being a fulcrum, as the springs having only 4 tons on them, will easily yield; but we will suppose the driving wheels in the centre with 10½ tons on them, the leading 7½, and the trailing 4 tons, the result of inequalities before mentioned will have the effect of causing the engine to rock on the centre wheels, the springs of which being too rigid to yield. To make it more clear, suppose the trailing wheels without any weight on them, the result would be an overhanging of the boiler to an extent quite inadmissible; and any weight on the trailing short of that on the centre wheels only diminishes the evil; but in placing the greatest weight on the trailing or hinder wheels, as in my engine, no such tendency exists. I come therefore to the conclusion, that an engine having the weight distributed as in the Namur, is correct in principle, which is fully borne out by the working of the engine. With regard to any proportion of parts being adapted to my engine, I can only observe that I shall feel great pleasure in carrying out any engineer's proportions on engines that they may require on this plan. To enter minutely into all our fancies in this respect, I fear would be far from interesting to the society. I beg further to observe that I shall be happy to furnish the society (if they desire it) with the detailed experiments both of the Namur and the larger engine now nearly finished for the London and Northwestern, which I hope to have completed before the end of this session. The care required in making experiments with respect to coke and water, and the various circumstances to be taken into consideration during such experiments, demand that statements respecting them should be very carefully made, particularly in a new engine. I have, in consequence, come to the conclusion of not making them until my whole attention can be devoted to the subject, and everything is in a proper state for so doing.

Iron Manufacture.

We commence, in this number, the publication of a pamphlet "ON WALL'S IMPROVEMENTS IN THE MANUFACTURE OF METALS, *by the Application of Voltaic Electricity.*" This pamphlet was published in London last year, and a copy of it sent to a gentleman of this city, through whose politeness we are permitted to re-publish it in the Journal for the benefit of our readers. We cannot introduce it in any language, it appears to us, so appropriate as that of the author in the form of a "*preface,*" which is as follows, viz:

The novel and interesting process which forms the subject of the following pages, has been sometime before the public. Three years ago its claims were tested, and the experiments which then took place triumphantly established its efficiency, and proved it to be no idle pretension. Its non-adoption, therefore, may perhaps have been matter of surprize, for there has been no failure in any succeeding trial, nor any proof weakened. Prejudice has, it will be seen, done much, and that slow caution, so hostile to anything wearing the appearance of innovation, has operated prejudicially for a time, but its claims were too genuine to allow for a moment a doubt of its efficiency and importance. Matters however merely personal are seldom of consequence to interest the public, and transactions now bygone even in their consequences, it were useless as inopportune to discuss. The crisis is passed; the judgment formed on the merits of the discovery, remains unshaken, and applications for the use of it have again poured in upon the patentee. At such a juncture the appearance of the present pamphlet will be deemed not ill timed. It will tend to strengthen this restored confidence, and hasten to society the possession of advantages which we hesitate not to maintain are equal to any ever conferred on industry and art.

ELECTRO METALLURGY.

The application of electricity, as patented by Mr. Wall, in the manufacture of iron and other metals, is unquestionably a most interesting process. It forms an epoch in the annals of science, and is pregnant with results of the highest import. Its novelty, perhaps, may seem to require some introductory remarks, but the numerous trials to which it has been subjected during a period of four years, the details of which will be given hereafter, will prove more satisfactory than the most elaborate dissertations. However, a few remarks on the progress and present state of the iron trade will be necessary, in order to form a correct idea of the advantages to be derived from Mr. Wall's invention.

Sixty years ago the English bar iron was made by means of charcoal, to which, occasionally, was added coke in small quantities. The metal thus produced was hard, deficient in strength, and brittle, and required so much time to convert it from the cast state to malleable or pure iron, that the largest works turned out not more than twenty tons per week. A great change, however, was at hand.

About the year 1790, Mr. Cort invented the method called *puddling:* this operation consists in exposing the iron to the flame of pit-coal on the hearth of a reverberatory furnace, while it is dilligently stirred about with rakes or paddles, a process at first much opposed both by masters and men, but now universally adopted. Mr. Cort further improved his process by previously melting the cast iron in contact with coke blown upon by bellows, an operation now known by the term *refining.* Cast iron thus operated upon, become, after being puddled, a strong cohesive metal, to which he gave density and nerve, by beating it under a huge hammer, worked by steam or other power. It was then reheated and rolled, and thus came out malleable iron, and probably superior to any now produced in this country. The improvements introduced by Mr. Cort soon attracted the attention of government; this metal was recommended for the use of the navy, and after severe trials, was found equal to the best Swedish iron.

But these advantages had not been long secured before a great falling off took place in the quality of the materials used; to such an extent as not only to neutralize the improvements of Mr. Cort, but to render the iron offered for use at the present day, inferior to the metal produced before his time.

The ores then used for making cast and bar iron, were principally brown and red *hematites,* with a small proportion of the *earthy* iron ores: minerals far purer than the *clay ironstones* of the coal formation, almost exclusively employed in the smelting furnaces at the present day. When we consider further, that the *crude nature* of the materials is aggravated by smelting them with raw coal, urged on by a hot blast, we cannot be surprised at the inferiority of the article now brought into the market.

In consequence of the increased demand for iron, the competing effort for increase in quantity, has almost excluded all regard for its quality. Hence, when iron is required for anchors, cables, etc., recourse is had to Sweden or Russia, from which countries upwards of 16,000 tons is annually imported.

The rapid rate at which the production of iron has increased in Great Britain, may be seen from the following statistical retrospect:

In 1740, our cast iron was made with charcoal fuel, and amounted to 17,350 tons.

In 1788, the product was 61,900 tons, of which 48,800 were made with coke.

In 1796, about 125,000 tons were made, and almost wholly with coke.

In 1806, the product was 250,000 tons.

In 1820, the amount was 400,000 tons.

In 1830, the product had become 677,147 tons.

In 1840, the product is stated at 1,396,400 tons.

The product may be estimated at the present time, at a million and a half tons, from which enormous quantity it would be difficult to select a specimen either of cast or bar iron, equal in quality to that made 55 years back.

But it is not by statistical tables, nor mere theoretical comparisons that we are to judge of the system under consideration. It is not a matter confined to the hall of the lecurer, or the laboratory of the experimentalist. It should be reviewed in its consequences, in connection with those fearful accidents so frequently occurring in different parts of the world: and which are to be attributed solely to the impure quality of the metal used in the machinery destroyed. It may be said—"every evil cures itself," if allowed time;—but who, having the least pretention to philanthropy, would hesitate, or countenance any delay, where the lives of thousands are at stake?

It is vain, however, to expect that iron-masters, intent only on out-stripping their rivals in quantity and cheapness of production will incur the trouble and cost of any considerable and expensive alteration in their establishments.

At such a juncture, when the demand for iron is so rapidly on the increase, the appearance of Mr. Wall's invention is most opportune, as it offers a simple and economical process for separating the crudities which contaminate our iron, and bringing it nearer to the pure, tenacious and ductile condition of the best marks of Swedish and Russian metal.

It is hardly necessary, in the present state of chemical knowledge, to allude to the discoveries of our illustrious countryman, Davy, but the analogy between his writings and Mr. Wall's process is obvious.* A slight perusal of that philosopher's treatise on electrical phenomena, in the production of the metals potassium and sodium, from bodies previously regarded as elementary, by the action of voltaic electricity, would sufficiently illustrate Mr. Wall's principles.*

It may, indeed, surprise anyone who is not aware of the unfortunate barrier which ignorance and prejudice have set up, and continue with obstinate blindness to maintain, between scientific research and the arts of life, that Davy's splendid discovery, above noticed, had not long ere now been applied to that chaos of conflicting elements which are associated on the hearths of our iron furnaces.—Here are found, huddled together in intimate combination, a multitude of substances, such as silicon, alumina, titanium, manganese, sulphur, arsenic, phosporus, all more or less prejudicial to iron.† Now, if the most simple action by which the temperature of bodies is raised, evolves electricity, and the mere contact of two dissimilar metals induces electrical action, what must be the effect on a molten mass of the above discordant materials, with their electrical conditions, raised to the highest degree of excitement by the intense heat of a blast furnace?

A reference also might be made to the works of Prof. Farady, a name great in the annals of science, and whose "Experimental Researches" are full of corroborative proofs of the principles under consideration. Other authorities might be cited, but the above great names are amply sufficient. We will, therefore, proceed to note down the experiments made by Mr. Wall, which will be more satisfactory than any proofs drawn from the analogous writings of others. For notwithstanding that its phenomena were observed by remote antiquity, although it is as widely diffused, as energetic in its character, and as important in the economy of the material universe as heat itself. Electricity is even yet imperfectly known; its properties are not yet accurately defined; it is a region, where, though many discoveries have been made, strange adventures will yet be met with, which may overturn, or at least materially change all received views. Consequently, where the whole structure of our knowledge is raised by active observation and experiencce, one fact is of more worth than a thousand arguments—one experiment stronger than a legion of theories.

"To arrive," says Mr. Wall, "at just conclusions in science, inquiry and proof are obsolute requisites; for if the basis be not truth, disappointment is sure to follow. I have, therefore, felt more anxiety, and bestowed more exertion, in convincing myself of the practical results of my discovery, and its benefits to manufacturers, in the first instance, than I have troubled myself in convincing them or others since.

"The wonderful effects of electricity in Sir H. Davy's experiments, and enlarged and improved upon since his time, convinced me of the practicability of my plan, and the results to be expected from a steady pursuit in its development, For this purpose I gave up all other matters on hand, and commenced my experiments about 5 years since, resolved to allow nothing to interfere so as to frustrate the object in view. It would, however, be tedious and uninteresting to give a minute description of the several experiments I made during a period of three years and a half, up to the autumn of 1843. From that date, my experiments, hitherto private and on a small scale, became public, and took place in the presence of men of honor and veracity, whose testimonies I have procured. The parties with whom my first engagements were made were well qualified for the purpose in hand; and their skepticism, if I may so term it, obliged me to show and explain everything, (often repeatedly,) which had even the remotest connection with the affair.

"On the occasion referred to, the iron was seen in London, first in the Welsh pig; then broken, melted, electrised, and recast into pigs of 150 pounds each. Then, without being lost sight of, it was conveyed, per rail, to Birmingham, where it was puddled, hammered, and rolled into bars and plates, in the presence of the above mentioned parties. It was in this state brought back to London, and the strength of the metal was tried at the great anchor forge of Messrs. Brown and Lenox, Mill Wall. It was twisted, pierced, punched, hot and cold, as well as being made into chain, and subjected to the testing machine, where the power induced by leverage will snap the strongest chain cable in the British navy. Mr. Lenox, in person, superintended the testing, and furnished the following report:

Iron Cable Manufactory, Mill Wall,
20th October, 1843.

3¼ inch links, made of Mr. Wall's iron, broke with machine, having borne several strains as under:

¾ inch full, measuring 7¾ inch long, at

		Inches.	
10 tons elongated,	to	8¼	
12 " "		8½	reduced bare 1/32
16 " "		8¾	
17 " "		8⅞	
18 " "		9	reduced full 1/32
21 " "		9¾	

22 14 cwt. broke showing a good chain fibre.

Best cable iron should bear test 19 tons in chain.

One bolt, 2 ft. long by ¾ inch full at

		Inches.	
8 tons elongated,	to	24½	reduced bare 1/32
9 " "		24⅞	
10 " "		25¼	
11 " "		26¼	reduced full 1/32

11½ broke, showing a similar fracture to the above. Reduced, at break, to ⅞ inch.

R. G. P. Lenox.

"The gentlemen who manufactured the specimens in Birmingham, were entire strangers, both personally, and to the objects we had in view. Indeed they were told that the metal to be operated upon was a speci-

* See Sir H. Davy's first Bakerian Lecture, "On some Chemical Agencies of Electricity," read to the Royal Society in 1806; for which, during the hottest period of French hostility, the great Napoleon prize was awarded its author, by the Institute of France.

* See second Bakerian Lecture, delivered on the 19th of November, 1807, entitled, "On some New Phenomena of Chemical Changes produced by electricity; particularly the decomposition of the fixed alkalies, and the exhibition of the new substances which constitute their bases: and on the general nature of alkaline bodies."

† Of these deteriorating compounds, *silicon* is that which is most largely introduced by the agency of the hot blast; no less than ten per cent. having been obtained from cast iron produced at a great Welsh establishment.

men of foreign ore, reduced into metal, which we were desirous of having tested, without favor, as by their report they were to be guided in our speculations; so that under such circumstances, their conduct and report admit of no suspicion of unfair dealing."

After the metal was puddled, and rolled into bar, the following queries were sent by Mr. Wall to the parties in Birmingham:

"Mr. Wall presents his compliments to Mr. Sims, and is desired to request answers to the following questions:

"First—Please state what process the metal sent you on the 15th inst., has undergone, and what may be its intrinsic value in comparison with metal from Staffordshire ore, undergoing a similar process?

"Second—State what per centage this specimen possesses over ordinary pig, and the purposes to which it can be applied?

"Third—Does Mr. Sims consider metal produced from such pigs, as that operated upon, a saving of any of the intermediate processes, and what number?

"Fourth—What might be the amount of saving to an establishment manufacturing such pig, and with all the knowledge and facilities of the Welch or Staffordshire manufacturing establishments?"

Birmingham, Oct. 14, 1843.

Answer to question the—

"First. The metal sent here on the 12th inst., has undergone processes 1 and 2, and the intrinsic value is about £8 per ton, present market price; and it is 20 per cent. better than either Welch or Staffordshire iron, undergoing a similar process.

"Second. This question is answered in the first, except that this metal may be applied to any purpose where best iron is required.

"Third. I consider metal by No. 2 process from such pig, equal to that manufactured by Nos. 3 and 4 processes of Staffordshire bar iron of the present day.

"Fourth. A company working from such metal as that sent here on the 12th instant, with the knowledge and facilities of the Staffordshire establishments, would effect an average saving of 30 per cent.

"THOMAS SIMS."

"I, the undersigned, do hereby certify, and agree with Mr. Sims in his report on this iron,

JOHN PENN,

"Engineer and Foreman at Mr. Sims' Works for twelve years."

After such a trial, in which every point was so closely watched and so determinately contested, and where the results were so satisfactory, scepticism was at an end. Still, when these results were contemplated in their bearings on the various processes occurring in the manufacture of metals, a feeling of astonishment seemed to predominate. In order, therefore, to put an end to all doubts, and make conviction doubly sure, it was thought advisable that Mr. Wall should proceed to some of the large iron establishments in the north of England. Milton, near Sheffield, was the place chosen for this purpose. Accordingly, on the 6th of May, 1844, Mr. Wall went hither, accompanied by an assistant, and by the kind permission of the proprietor, was immediately introduced to the iron works. The manager, Mr. Hawthorn, as honest and upright a man as ever was employed in the trade, afforded every assistance in his power. His principal was "a clear stage and no favor," and he determined by the most accurate experiments, to test the real value of the discovery.

Milton Iron Works, May 8, 1844.

"The first experiment consisted in passing a current of electricity through about thirty hundred weight of No. 2 pig iron, when melted and received into a crane ladle. This ladle was lined with fire clay, and fixed in a bed within a few feet of the tap hole, so that it might receive the fused metal in its hottest state. The battery, which was a Smee's of thirty-six pairs, five and half inches by three, and arranged on the quantity principle, was applied by attaching the wire of the *positive* pole to a rod inserted in the top, and a wire of the *negative* pole to a similar rod at the lower extremity of the ladle. The action in the battery cells was regular but not strong. The menstruum (acid and water) was then changed from 1·5 to 1·7 specific gravity on Knight's acidimetre. The action being thus increased, a strong and highly offensive gas was emitted from the cells. Twenty-five minutes from the first application of the battery, two-thirds of the metal had set, so that the ladle was obliged to be emptied, to prevent the whole mass becoming solid. The portion which still remained in a fluid state, was run into beds of sand preparatory to its being puddled. The residue had so firmly adhered to the two poles, as not to be separated by any ordinary means.

"May 9th. The metal which had yesterday undergone the electrising process, was this day puddled in order to be compared with some metal in the ordinary or non-electrised state. The following is a table of the results:

Electrised Iron.

Charge.		Loss.
No. 1	3½ cwt.	16 lb.
2	3½	8
3	4	20

Non-electrised.

Charge.		Loss.
1	3½	24
2	3½	15
3	4	24

The only difference particularly observable between the two metals was, that the electrised appeared torn and fibrous at the fracture, indicating force of cohesion. Its carbon was of a darker hue, and the molecules presented themselves in the centre of the pig in large bright clusters, denoting the absence of sulphur, which usually covers the molecules in non-electrised metal with a dull lead like film. It puddled much the same as the ordinary metal, only thinner; but as a change took place, or when it began, as the workmen term it, *to come to nature*, it balled rapidly and soft. It was also noticed by the puddler, that it stood the fire better than the ordinary metal, a remark soon after confirmed by what occurred in the next trial.

"May 9, P.M. The metal electrised this morning was weighed out in portions of twenty-one hundred each, and was puddled this afternoon and during the night. The results were an average loss of 1 cwt. 1 qr. 2 lb. per ton, an excess, when compared with the preceding experiment, but solely attributable to the gross and wilful negligence of the puddlers. This man, from a blind spirit of opposition, which he did not attempt to conceal, made use of every means within his reach to mar the success of the operation.—Under pretence of some deficiency in his hammer, he kept some of the charges committed to his care *one hour and twenty minutes* after the metal had balled. But he was disappointed; as remarked before, it *stood the fire well*, for after being subjected to so severe a test, it actually came out in a better condition than the rest, although a loss of one-fifth was the consequence.

"Several other trials succeeded, all equally satisfactory. An account of all that had taken place was sent to Dr. Ure, in compliance with his request, by Mr. Hawthorne, the manager. In it he gives details of the whole proceedings; notes down the various phenomena which were observed during the experiments, and concludes by stating, that in his opinion, the process would effect a saving, in the manufacture of iron, of 35 per cent. The proprietor of the works, Mr. Graham, was so satisfied of the value and the efficiency of the invention, that he at once wrote to the party connected with Mr. Wall in the patent, to obtain a license for the use of it in his establishment. Specimens of the metal were taken to London, and there tested in every way calculated to convince the most prejudiced. Analyses were made by Dr. Ure, and other experienced chemists; and in their report, they place the metal, which is termed No. 2, if electrised, on a parallel with the *best best*. Besides, even in the *merchant* bar, formed of the ordinary metal, they found silicon, manganese, and arsenic; but scarcely a trace could be detected in the electrised metal, although manufactured from similar ores, and in every other respect, by the same process. It was observed, also, to roll better than the ordinary metal; to rid itself of its exquisitely fine cinder more easily; passing better through the rollers, and under the hammer; nor was there so much, by three per cent., of the peroxide of iron from the cinders left after *balling*."

To this last circumstance we shall again advert, when treating of the effect of electricity on the peroxide of iron.

(To be Continued.)

Branch Railroad.—It is stated that the Philadelphia, Wilmington and Baltimore railroad company, have it in contemplation to run a branch of their road from Wilmington to Newcastle, by which the chain of railroad communication will be complete from Pottsville to Newcastle, and the shipment of coal may be continued during the winter months.

Correspondents will oblige us by sending in their communications by Tuesday morning at latest.

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AMERICAN RAILROAD JOURNAL.

Published by D. K. MINOR, 105 Chestnut St., Philadelphia.

Saturday, May 8, 1847.

Massachusetts Annual Reports.

We give, this week, another of the Massachusetts Annual Reports.

Bridges for Railroads.

The following communication is from one who is every way competent to judge of the merits of Mr. Whipple's works—both bridges and books. We shall examine and refer to the subject again.

For the American Railroad Journal.

The object of this communication is to invite the attention of the profession, and others, to a treatise upon the construction of bridges, lately published, from the pen of S. Whipple, Esq., C. E., of Utica, New York.

Mr. Whipple has given much time and attention to this important subject; and as he is a gentleman of high attainments, both scientific and practical, and warmly devoted to mechanical pursuits,* his treatise is prepared in a very able manner, and will, I have no doubt, be productive of much good.

There is no branch of engineering so little understood by men of the profession, as that of the proper construction of bridges. This is evident from the diversity of plans adopted upon public works, which are as various almost as the works themselves—a state of things somewhat remarkable, as there cannot well be more than one best plan for bridges of the same dimensions and character, and which can only be accounted for by a want of that complete knowledge of the subject requisite for forming a correct judgment. This want, Mr. Whipple aims to supply, and he begins at the right place, viz: at the foundation, by stating clearly the principles which should govern, and thence proceeding to the application of those principles in the arrangement of plans suited to various circumstances.

To those at all conversant with the subject of bridges, it will be obvious that it is naturally divided into two parts—one portion in relation to suspension, and the other to truss bridges. The treatise of Mr. Whipple is confined almost exclusively to the latter. In his investigations, he supposes the truss or supporting frames to be composed either of wood, or of wood and iron combined, or of iron alone.

With respect to iron bridges his remarks are peculiarly valuable. His experiments have been made upon a sufficiently large scale, and the bridges he has built have stood a sufficient length of time to test their stability, and the correctness of the principles upon which they were constructed. It is now several years since the undersigned was invited by him to examine his models and plans for iron bridges, and a close observation since of bridges constructed in accordance with those plans, and a knowledge of the tests to which they have been subjected, has produced the conviction that bridges of iron for railways will, in the majority of cases, be found the most economical and safe, and the best suited in all respects to the purposes intended.

Those who have not given much attention to this subject, will be surprised at the small difference in cost between a truss bridge constructed principally of timber, and one formed wholly of iron. The instances are not few where durable iron bridges could have been constructed at a first cost not greatly exceeding that of the perishable wooden ones which have been adopted. As it respects the ultimate cost, the difference in the instances referred to, would have been greatly in favor of the iron bridge. We do not, however, desire so much to find fault with what is past, as to see a better knowledge of the subject prevailing with those who have the charge of public works, that fewer mistakes may be made hereafter.

The treatise of Mr. Whipple is drawn up in that plain and concise manner which indicates a clear and accurate mind, imbued with a very thorough knowledge of the subject. It is a work highly creditable to the profession, and will do honor to it at home and abroad. His illustrations and application of mechanical principles are brought as much as possible within the comprehension of all. He promises, if his present treatise meets with sufficient encouragement, to follow it by another of a far more strictly practical character, giving full details of plans suited to different circumstances and localities. We trust he will be so far encouraged in his present effort, as to induce him to persevere until he has accomplished all that he proposes upon the subject on which he is engaged.

E. F. J.

* Mr. Whipple is the inventor of the improved weigh lock, in use upon the enlarged Erie canal.—He is also the inventor of other valuable mechanical improvements.

"Great Western" Railroad.

We learn, from authority, that eight large corps of engineers have just been organized upon this route, and it is expected that the entire line will be ready for contract, as early as August next. The surveys for the projected railway from Rochester, to intersect the New York and Erie and the Blossburg railroads at Corning, have been completed.

The consummation of the "Great Western," and the road from Niagara Falls to Rochester, will complete the *last* links in the great chain from Lake Michigan to the pier heads of Boston Harbor.

Thayer's Truss Bridge.

This invention appears to be gaining high favor with the public. We are informed that another is in progress of construction, to cross the Delaware at Damascus, Pa., a few miles above the one heretofore noticed, and which from its extra length and strength is among the wonders of the age. The Damascus bridge is to consist of two spans of 250 feet *each*. The river is rapid at this place, and no bridge hitherto constructed has been able to withstand the force of the current and floating ice.

Legal Decision.

PHILIPS VS. NEW JERSEY RAILROAD COMPANY.

Philips was passing in a wagon, with a colored lad, along the road near Newark, parallel with and near the railway. He met the train, and at the moment of passing, the engineer let off steam, which frightened the horse, caused him to rear, and he fell into a ditch, dragging in the wagon and those in it, by means whereof the horse was drowned, and Philips and the boy were chilled and injured. He sued to recover damages for the injury. The suit was fully tried before Judge Edmunds, in the New York Circuit Court, and a verdict rendered for plaintiff of $225.

Boats on the New York Canals.

The Canal Department of the State of New York has a regulation requiring the enumeration of all the boats upon the Canals, at the closing of the season. The list furnished in November last (1846) gives the following, which may be useful for reference. We copy the account from a late number of the Rochester Democrat:

Kind of Boat.	No.	Tonnage, Average.	Value.
Packets	49	32	$49,000
Line boats	477	65	477,000
Lake boats	588	65	588,000
Bull head boats	187	67	187,000
Scow boats not decked	683	58	720,000
" decked	741	62	
	2725	62	2,013,000

The inventory taken in 1843 was the first attempt of the kind, which gave a total of 2126. A comparison of that year with the last shows the increase and decrease of each description of boats:

Kind of Boat.	1843.	1846.	Inc.	Dec.
Packets	40	49	9	...
Line boats	389	477	88	...
Lake boats	379	588	209	...
Bull head boats	118	187	187	...
Scow boats decked	327	741	414	...
" not decked	873	683	...	190
	2,126	2,725	789	180

This exhibits an increase of 599 boats, or about 23 per ct.; while the number of tons passing thro' the canal in the same time has increased about 50 per cent., or from 1, 513,439 in 1843, to 2,268,662 in 1846. The less proportionate number of boats to the large increase of business, is to be found in the continual increase of their size, as the following shows:

Kind of Boat.	1843.	1846.	Increase.
Packets	1,370	1,353	183
Line boats	21,082	30,797	9,715
Lake boats	23,865	38,017	14,152
Bull head boats	7,350	12,514	5,164
Scow boats decked	18,425	39,844	21,419
" not decked	75,361	45,562	201
	117,453	168,287	50,834

The progressive increase in the tonnage of boats is more satisfactorily shown by the registered tonnage within the last three years:

Tonnage.	Boats. 1844.	New Boats. 1844.	1845.	1846.	Boats. 1847.
180	...	...	...	...	1
120	...	...	...	...	2
110	...	...	...	...	3
100	...	...	1	1	3
90	2	1	4	6	...
85	1	...	1	7	12
80	3	9	13	100	103
75	14	33	60	186	214
70	175	124	107	123	479
65	295	94	54	26	530
60	526	71	33	9	690
55	256	15	4	1	212
50	457	13	5	3	255
45	158	1	2	1	87
40	147	...	...	3	69
35	33	1	1	...	14
30	34	11	1	2	27
25	10	3	...	4	4
20	8	...	3	3	11
15	3	1	...	...	6
10	4	...	1	2	3
5	...	...	4	...	...
2	...	...	3	...	...
	3,126	378	297	477	2,725

It appears from the foregoing statement that the

ascertained number of boats 1st of January, 1844, was		2,126
Built and registered in 1844	378	
" " 1845	297	
" " 1846	477	
		1,152
Making in all, without allowing for 'deaths'.		3,278
But the actual ascertained number of boats on the 1st of January, 1846, was		2,725
Showing the diminution of boats to be		553

As the 1,152 new boats built and registered in the last three years, are of course still in existence, it necessarily follows that the diminution of 553, as above stated, since 1843, is from the oldest boats of the least tonnage. It is perhaps fair to assume that the 553 boats which have gone out of use since 1844 were of an average tonnage of 47 tons. The average tonnage of the new boats is 68 tons. The absolute addition to the tonnage of the canals in the last three years, consequent upon such increase in the number of large boats, and the diminution in the number of small boats may be stated as follows:

2,126 boats, being the total No. Jan. 1 '44,	115,185
Deduct—553 old boats gone out of use,	25,991
Lev'ng 1,573 old boats in use Jan. 1, '47,	89,194
Add, 1,152 new boats since Jan. 1, '44,	78,336
Mak'g 2,725 boats, and a total tonnage 1st January, 1847,	167,538

This differs only 758 tons from the tonnage of all boats as ascertained by actual view and estimate as before stated, and is equal to an average annual addition in the last three years to the tonnage of the canals of 17,449 tons, 13 per cent. per annum, or 39 per cent. for the whole time. The average annual absolute addition of boats in the same time, after deducting those which have gone out of existence, is 200 per annum, equal to 9 per cent.

Ogdensburg and Boston Railroad.

Our citizens, says the *Rochester Democrat*, are more deeply interested in this road than they imagine.—The Bostonians, ever alive to their interests, are making strong efforts to secure a portion of the western trade. To effect this, they have left nothing undone. The magnificent project of uniting Boston with the St. Lawrence, by a railroad to Ogdensburg is likely to be carried immediately into effect. Experience has shown the citizens and capitalists of that place, that a railroad connecting with a great western thoroughfare, is to them a mint of money. Even the imperfect facilities of the Western railroad have been productive of vast benefits to the city.—The enterprize and perseverence displayed in the Ogdensburg project is a sure guarantee that this work will be completed with all convenient speed. They first opened a private subscription, and employed surveyors, who traversed the line and made reports, which showed that the thing could be done; they then set to work and obtained charters from N. York and Vermont—opened books—obtained subscriptions for two roads to Burlington—made arrangements to connect with the Canada thoroughfares, which will secure them a rich trade—and commenced the construction of the two roads, which are to terminate at Burlington—one of which runs by way of Lowell, Concord and Montpelier, and the other by Fitchburg, Keene and Rutland.

"From Burlington to Ogdensburg is 155 miles. The height to be overcome in passing from one place to the other is 1009 feet above Lake Champlain, and 859 above the point where the road terminates on the St. Lawrence. The grade from Ogdensburg to the summit is 26 feet to the mile, or 1 to 200, there being in the distance 1,195 feet ascending and 286 feet descending. The summit is 2½ miles from the Canada line, and from this point to Lake Champlain there is no ascending grade, and the maximum of descent is 39 feet to the mile. This will favor the passage of heavily laden trains from the west. None of the curves exceed 5000 ft. The estimated cost of the whole road is $2,229,279, or $19,000 to the miles. The road will cross Lake Champlain at Rouse's Point, by a bridge 3,880 feet long, over a sheet of water 20 feet in depth. At the point of crossing it will be met by the road from Montreal. Boston capitalists have made large investments in real estate at Ogdensburg. One company has taken about a mile on the river for wharfing.

"There are several reasons why this road is important to Rochester. When completed, flour can be sent from our landing for 12½ cents per barrel to Ogdensburg, and thence to Boston for 37½ cents, making the cost from this city to Boston at about 50 cents. Perhaps 75 cents ought to be considered about the aggregate charges on a barrel of flour from the time it leaves the mills in Rochester till it is on shipboard in Boston. It is plain to see that this route will in the nature of things compete successfully with the Erie canal, which, in its present capacity, can carry only a portion of the freight seeking a market in the eastern seaports. Boston now exports 500,000 barrels of flour a year, and as soon as an avenue to the west is opened that quantity will be doubled.

"The construction of this road must necessarily increase our lake trade, and greatly augment the amount of shipping at this port."

Southwestern Railroad Convention.

The Macon Telegraph—speaking of the Convention which was proposed to be held at Americus on the 28th of April—says it has been postponed to the 18th of May. The object of deferring the meeting to that period, is to adapt the time, as far as practicable, to the convenience of the people of the Southwestern circuit—the courts of which circuit being in session, a number of influential citizens would not be able to give their attendance, on the day first named.

We are happy to learn that the people of the counties through which the contemplated road is to pass, are wide awake to their interests, and are arousing themselves in good earnest to the work.—They are the most interested and the most to be benefitted by the undertaking, and should not merely lend a helping hand, but take the lead, and by their example and zeal induce others to follow. The most cursory inspection of the map of southwestern Georgia, will satisfy any one of the expediency, nay, of the necessity of a communication that shall be certain, speedy and cheap, between that section of the State and the Atlantic markets. This is a progressive age and country. There is an emulous spirit for making money prevailing everywhere;—competition meets us on every side; and to be stationary in any department of business, is in fact to be retrograding. The cotton region of Georgia, as it has been appropriately called, can produce a better article of cotton, and larger and more certain crops, than any other part of the State; but what will their crops avail, if there is no outlet for them? The superiority in quality, and the excess in quantity, are more than counterbalanced by the advantages which superior enterprize and energy have given other less favored parts of the State.

It would be a profitable and interesting calculation, which may be made at some future time, to estimate the extra charges incurred upon shipments of cotton down the Flint and Chattahoochie rivers, and thence by a circuitous, tardy and dangerous navigation around the Florida keys; or to estimate by approximation, the damage and loss sustained by the detention, sometimes for months, of cotton on those rivers, in consequence of their unnavigableness. The item of charges, which in the return of sales, is always an important consideration, our planting friends, should they ship their cotton, instead of selling it to the merchant, would be disposed to look upon as an extravagant extortion; and yet they alone pay it; for all incidental charges attached to the transportation of their cotton to market, such as freight, postage, insurance and interest, affects the first cost of the article.

As we have before urged, says the Telegraph—"there is every reason for, and none against, a vigorous and prompt support of this undertaking by the planiers of southwestern Georgia. They will do it from choice. They will be forced to it by stern necessity, for if they expect remunerating profits which increasing competition is annually diminishing, they *must* open a direct communication with the Atlantic. Let the planters of Sumpter, Lee, Baker, Randolph and Stewart, set down and count the cost on a bale of cotton before it arrives at the port for shipment, incurred by high freights, extravagant rates of insurance, detention, loss of interest, etc, and contrast it with the expenses paid on inferior cotton by the planter of middle Georgia, who gets it to market in three or four days, and the difference in charges is what the planter of the cotton region of Georgia loses on his cotton."

Greenville and Charlotte Railroad.

The *Charleston Mercury*, in an article upon the subject of the probable completion of their projected roads, says a Georgia exchange, "speaks strongly in favor of adopting means for developing the internal resources of its own State; instead of competing with its neighbors, for the command of their internal trade; a rivalry, which though profitable at first, from incidental advantages, must eventually result in the triumphs of their own home interests, if the true Georgia feeling be not totally extinct.

"The annexed paragraph gives strong and conclusive reasons for the propriety of the former course in Carolina. It has always struck us as remarkable, continues the paper from which we quote, that the abundant produce of the upper districts of that State, should have been locked up so long from all communication with her seaport, by the want of any mode of transportation, while such a truly fraternal zeal has been manifested in directing the superfluities of upper Georgia from our own city—the natural outlet—to the city of Charleston.

"While in our verdant youth, such fostering care was duly appreciated; but the child has now grown old enough to take its own property into its own hands, and if we mistake not the signs of the times, will soon be able to convince her neighbor of the necessity of looking nearer home for the storage of her granaries, than the Cherokee counties, whose trade should be ours, from all motives of mutual interest and State pride; and must be—if our merchants only exert due energy and skill in developing the facilities which their position and advantages have placed in their hands. Why will not Georgia awake from her slumbers—rouse herself from the apathy into which she has been plunged, and contribute her resources to the building up of *her own seaport*, in preference to that of a neighboring State, who sneers at her short-sightedness while waxing fat upon her gifts? Both policy and State pride contribute to urge the adoption of a course so natu-

ral and so profitable to all sections alike. Our own sectional jealousies should not pe allowed to impede our progress. They would be regarded as simply ridiculous, were not their efforts so fatal to our common prosperity. The Mercury says:

"'*The Cherokee county in Georgia*, which we are now approaching, and which we have been so desirous of reaching, is from 367 to 400 miles from Charleston. The freight from the different stations within that limit varies on grain from 25 to 30 cts. per bushel, and on flour from $1 20 to $1 37½ per bbl. These productions from that quarter are likewise exposed to the detention and loss of breaking bulk at Augusta and tax across the bridge.

"'The distance, and by a continuous and uninterrupted railroad from Charleston to Greenville, and to Charlotte, will not exceed 250 miles, and the rate of freight on grain may be fixed at 12½ cts. per bushel, and on flour from 75 to 80 cts. per bbl., being in favor of the Greenville and Charlotte route, over that to the Cherokee county in Georgia, on grain from 12½ to 17 cts. per bushel, and on flour from 45 to 57 cts. per bbl. The proportional reduction on freight or other articles, such as tobacco, potatoes, fruit and feathers, of which the interior of North Carolina is productive, will be no less advantageous."'

Connellsville Railroad.

The Stockholders of the Pittsburg and Connellsville railroad company held a meeting on Tuesday afternoon, 27th ult., and passed resolutions setting forth that from the friendly disposition of the citizens of Baltimore, as evinced in the proceedings of their meeting of the 3d ult., the stockholders "are disposed to make one effort more to complete an arrangement with the Baltimore and Ohio railroad company." The whole subject is therefore referred back to the directors, with full power to act in relation to the whole matter. The meeting adjourned to meet on the 19th inst.

In connection with this subject, we see it stated that a committee of citizens, among them the Hon. Louis McLane, left Baltimore on Thursday for Wheeling, to endeavor to compromise with the citizens of that place the late law of the State of Virginia, granting the right of way to the Baltimore and Ohio railroad company, through that State.

Foreign Correspondence.

We have, again, the pleasure of a letter from Mr. Hedge, who has been for some time past in London. He has an opportunity of witnessing, to some extent, the operations—not only of the railway *system* in England, but also of those who are applicants for new—and, oftentimes, to those now in use, *rival*—lines; and, notwithstanding the constant demands of his own business upon his time, we hope to derive many useful and interesting facts from him. To the readers of the Journal, who have made his acquaintance, during the long period of his connection with it, we are quite sure it will be gratifying to learn that he is well, and in fair prospect of success in his present enterprize.

We continue his statement—showing the weekly receipts upon 32 railways. The amount is, as he remarks, "enormous"—*almost incredible*—yet such are the facts—and they may be looked upon as indicative of the future in this country.

He says, in his letter, dated "7 Howard Street, Norfolk Street Strand, London, March 30th, 1847—I sent you per ship Gladiator, February 6th, a letter and a map of the railways in operation, and those projected, and now before Parliament, which is said to be quite complete; they appear to be marked out in almost every direction, and when completed will enable a traveller to reach almost any point by *rail*, as John says. I do not exactly understand why it should necessarily be so much more expensive to travel by rail in this country than it is with us, but still it is the fact that fares are double, at least, what they are in the United States; and the carriages are not to be compared with those used on most of the roads in the United States. I sent, as above, a table of weekly receipts on a few of the roads, which I have continued to collect; and send annexed the amount received on the same roads for the four weeks last past; it appears to me to be an enormous sum: how does it compare with the amount received on our roads? I have read with great interest the articles which appeared in the Journal of 20th and 27th Feb., upon the Great Central Railroad from Philadelphia to St. Louis. If a paper, as ably written, upon each of the great main lines throughout the country, could be obtained, and published in the Journal, in succession, it (the Journal) would—*must*—be sought by all the intelligent readers of the country, to guide them in a proper understanding of the great interest of the country, and it would be bestowing upon *them* a boon indeed, while at the same time it would be the means of insuring *you*, the *ability* to *pay for*, and thus secure the contributions, of a class of men eminently capable of communicating the results of years of experience and careful study, directed exclusively to the necessities of the different States, and the best means of developing and forwarding business: it would also stamp legibly upon the *Journal*, *its* value as the *only* paper in the United States to be *relied* upon, on the study now uppermost in the mind of the *world*. There has been sharp work in the railroad committee rooms this session of Parliament, every line and portion of a line, indeed every *inch*, meets with opposition from rival lines, and if everything pertaining to an application be not exactly according to the *rules* laid down, it is immediately thrown overboard, or, rather, out. I was listening the other day to an opposition to a Scotch branch line, when a friend who accompanied me, pointed out an eminent Scotch engineer, and said of him, that a certain company made proposals to him to take charge of the work, and desired his terms, which in due time he communicated, and being considered quite too high, he was asked to reconsider, which he did—and added another £10,000!

"The shareholders of the Ulster, (Irish railroad, 25 miles long) have recently had a half-yearly meeting; the receipt for six months were, for passengers, £11,991, for goods, £6,996, total, £18,987; expenses, £7,468; leaving a *net profit* of £11,519 = $55,752—out of which they paid a dividend of £1 per share. This road had but a single track up to 1st January, at which time a second track was opened, of a *different* gauge—the old one being 4 feet 8½ inches, and the new one 5 feet 3 inches—the Irish standard gauge. The passenger traffic is now confined to the new, and the goods to the old line. Resolutions were passed approving of the dividend, (*of course*,) and placing at the disposal of the directors £100 for charitable purposes, (very necessary and proper at this time)—and *giving* £30 to the *Stewards* of the *Down* corporation, *to be run for at the next races!!* I expect the latter portion of the proceedings is peculiar to '*Ireland and the Irish*'—and its meaning I do not understand, but presume it must come under the head of 'business *created* by the opening of the Ulster railway.'

"I have been over a portion of the Great Western railway, and the South Western—have also been over the Croydon atmospheric, and examined it; it seems to *work* well—but it does not seem to be much in favor. They have recently opened two miles more, making seven miles in all. Mr. Samuda, the patentee, has recently met with quite a loss in the burning of his works at Blackwall. * *

"I do assure you it is a great pleasure to receive the Railroad Journal regularly. How the *croakers* must be disappointed in the more than entire success of the *Reading road*, as set forth in their recent report. To the *few* who have constantly predicted *success*, how gratifying—and to the *poor* consumers of coal, what a real blessing!!

"Your obedient servant,
"E. Hedge."

RAILWAYS.	Length in miles.	Week ending Feb.	Amount. £	s.	d.	Week ending March	Amount. £	s.	d.
Arbroath and Forfar	15								
Chester and Birkenhead	14½	26	580	8	2	5	586	5	7
Dublin and Drogheda	31	25	737	12	1	4	738	17	11
Dublin and Kingstown	6	Mar. 2	681	5	0	9	680	18	1
Dundee and Arbroath	16½	Feb. 28	268	2	3	7	263	9	9
East Lancashire	28	27	762	10	6	6	797	1	3
Eastern Counties	126	28	8,680	12	9	7	8,655	8	4
Edinburg and Glasgow	46	27	3,340	8	3	6	3,234	8	10
Glasgow, Paisley and Ayrshire	51	27	2,210	6	5	6	2,157	15	10
Glasgow, Paisley and Greenock	22½	27	992	16	3	6	1,008	14	4
Great Western	221½	28	15,670	10	1	7	15,708	9	0
Great Southern and Western—Ireland	56½	27	1,020	2	10	6	1,045	3	0
London and North Western	333	27	35,212	8	10	6	35,220	17	4
London and South Western	92½	28	6,113	10	3	7	6,058	15	5
London, Brighton and South Coast	95½	27	5,200	12	8	6	5,076	11	0
London and Blackwall	3½	28	716	9	0	7	701	10	10
Midland, Bristol and Birmingham, Leeds and Bradford, Nottingham and Lincoln—4 roads	268½	27	16,983	5	3	6	17,013	12	6
Manchester and Leeds—including Bolton and Preston District	94½	27	7,700	10	4	6	7,798	13	8
Manchester, Sheffield and Lincolnshire	40	27	1,760	6	10	6	1,751	1	1
Newcastle and Berwick	7	27	616	12	0	6	601	16	4
Newcastle and Carlisle	61	27	2,020	9	2	6	2,000	4	0
Norfolk	58	28	1,510	11	3	7	1,501	19	0
North British—including Dalkeith Branch	72½	27	1,342	2	9	6	1,322	11	8
Preston and Wyre	19	27	538	8	10	6	540	7	4
South Eastern	143	27	5,694	14	1	6	5,766	16	3
South Devon	20	26	519	6	10	5	427	18	5
Shrewsbury and Chester	15	26	326	19	5	5	319	11	0
Taff Vale	30	27	1,298	2	1	6	1,307	14	1
Ulster	25	28	722	10	3	7	724	10	6
York and Newcastle	107	27	8,213	4	8	6	8,206	14	9
York and North Midland—with Leeds and Selby	155	27	5,227	7	11	6	5,196	1	1
Paris and Rouen	84	Mar.	5,314	0	0	8	6,101	0	0
	2187½		£133,777	7	0		£141,615	11	0
			$647,482	43			$685,419	35	

MASSACHUSETTS ANNUAL RAILROAD REPORTS.

Return of the Fitchburg Railroad Company, under the Act of April 16, 1846.

Capital stock	$1,763,400	
*Increase of capital since last report	440,900	
Capital paid in, per last report	1,322,500	
Capital paid in since last report	529,075	
Total amount of capital stock paid in, [including 25 per cent. on 3527 shares new stock, created June 25th, 1846]	1,851,575	
Funded debt, per last report	None.	
Funded debt paid since last report	None.	
Funded debt, increase of, since last report	None.	
Total present amount of funded debt	None.	
Floating debt, per last report	97,306 25	
Floating debt paid since last report	97,306 25	
Floating debt, increase of since last report	None.	
Total present amount of floating debt	" except reservations	
Total present amount of funded and floating debt,	[on contracts not completed.	
Average rate of interest per annum on do.	5 to 5½ per cent.	

COST OF ROAD AND EQUIPMENT.

†For graduation and masonry, per last report	$298,121 91	
‡For graduation and masonry, paid during the year	60,690 80	
Total amount expended for graduation and masonry		$358,812 71
For bridges, per last report	102,938 08	
‡For bridges, paid during the past year	43,175 16	
Total amount expended for bridges		146,113 24
For superstructure, including iron, per last report	327,545 84	
‡For superstructure, including iron, paid during the past year	85,080 88	
Total amount expended for superstructure, including iron		512,626 72
For stations, buildings and fixtures, as per last report	119,063 81	
‡For stations, buildings and fixtures, paid during the past year	41,441 92	
Total amount expended for stations, buildings and fixtures		160,505 73
For land, land-damages and fences, per last report	336,088 24	
‡For land, land-damages and fences, paid during the past year	91,233 51	
Total amount expended for land, land-damages and fences		427,321 83
For locomotives, per last report	66,245 14	
‡For locomotives, paid during the past year	13,200 00	
Total amount expended for locomotives		79,445 14
For passenger and baggage cars, per last report	20,309 40	
‡For passenger and baggage cars, paid during the past year	10,650 00	
Total amount expended for passenger and baggage cars		30,959 40
For merchandize cars, per last report	60,746 94	
‡For merchandize cars, paid during the past year	39,745 77	
Total amount expended for merchandize cars		100,492 71
For engineering and other expenses, per last report.	46,418 67	
For engineering and other expenses, paid during the past year‡	12,622 76	
Total amount expended for engineering and other expenses		59,041 44
Total cost of road and equipment		$1,875,318 92

CHARACTERISTICS OF ROAD.

Length of road	49·343m. fm depot to depot.
Length of single track	" " " "
Length of double track	5·113 miles.
Length of branches owned by the company, stating whether they have a single or double track.	11200 ft. single tk. to Fresh & Spy ponds fm main road & 1275 feet below depot in Charlestown of double tk.
Weight of rail per yard in main road	56 lbs.
Weight of rail per yard in branch roads	56 lbs.
Maximum grade, with its length in main road	40 ft. 5·12m. in the aggregate made up of 4 separate plains on dif. parts r'd.
Maximum grade, with its length in branch roads	15 feet. 1866 feet long.
Total rise and fall in main road	739½ ft. rise, 313½ ft. fall.
Total rise and fall in branch roads	2·7 ft. rise, 5·6 ft. fall.
Shortest radius of curvature, with length of curve in main road	818 feet and 500 feet long.
Shortest radius of curvature, with length of curve in branch roads	[ice tracks about ponds. 573 feet and 300 feet long.
Total degrees of curvature in main road	1694½ deg.
Total degrees of curvature in branch roads	456 deg.
Total length of straight line in main road	34·67 miles.
Total length of straight lines in branches	3367 feet above depot in Charlestown, & 850 below do. leading to the wharves.
Aggregate length of truss bridges	454 feet.
Whole length of road unfinished on both sides	About 1½ miles, and about 2 miles where the track is not entirely filled.

DOINGS DURING THE YEAR.

Miles run by passenger trains	140,424 miles.
Miles run by freight trains	48,173 miles.
Miles run by other trains	11,715 miles.
Total miles run	200,312 miles.
Number of passengers carried in the cars	327,034 on road & branches.
Number of passengers carried one mile	5,981,872
Number of tons of merchandize carried in the cars	201,800
Number of tons of merchandize carried one mile	3,351,310
Number of passengers carried one mile, to and from other roads	[and W. Cambridge. 187,515 from Lexington
Number of tons carried one mile, to and from other roads	5,421 do. do.
Average rate of speed adopted for passenger trains, including stops	20 miles per hour.
Average rate of speed adopted for freight trains, including stops	10 miles per hour.
Estimated weight in tons of passenger trains, including engine and tender, but not including passengers, hauled one mile	7,021,200 tons, as nearly as the same can be estimated, including baggage and milk carried on the passenger trains.
Estimated weight of merchandize trains, including engine and tender, but not including freight, hauled one mile	4,217,892 tons.

EXPENDITURES FOR WORKING THE ROAD.

For repairs of road, maintenance of way, exclusive of wooden truss bridges and renewals of iron	$10,271 52	
For repairs of truss bridges	450 00	
For renewals of iron, including laying down		
For wages of switch-men, gate-keepers and flag-men	5,762 82	
For removing ice and snow	251 70	
For repairs of fences, gates, houses for flag-men, gate-keepers, switch-men, tool-houses	704 25	
Total for maintenance of way		$17,440 29

MOTIVE POWERS.

For repairs of locomotives	8,321 18	
For new locomotives to cover depreciation		
For repairs of passenger cars	3,700 20	
For new passenger cars to cover depreciation		
For repairs of merchandize cars	4,837 37	
For new merchandize cars to cover depreciation		
For repairs of gravel and other cars	537 00	
Total for maintenance of motive power		17,395 75

MISCELLANEOUS.

For fuel and oil	28,905 51	
For salaries, wages and incidental expenses, chargeable to passenger department	17,771 86	
For salaries, wages and incidental expenses, chargeable to freight department	25,680 34	
For gratuities and damages	542 56	
For taxes and insurance	647 52	
For ferries		
For repairs of station building, aqueducts, fixtures, furniture	516 14	
For interest		
For amount paid other companies in tolls for passengers and freight carried on their roads, specifying each company		
For amount paid other companies as rent for use of their roads, specifying each company, [Lexington and West Cambridge Branch]	2,400 00	
For salaries of president, treasurer, superintendent, law expenses, office expenses of the above offices, and all other expenses not included in any of the foregoing items	6,138 44	
[The office expenses, except expenses of treasurer's office, are included in the expenses of freight and passenger departments.]		$117,447 34

INCOME DURING THE YEAR.

For Passengers:		
1. On the main road exclusively, including branch owned by company	125,118 12	
2. To and from other roads, specifying what: [Lexington and West Cambridge Branch]	3,619 97	
For Freight:		
1. On main road and branches owned by company	151,038 57	
2. To and from other connecting roads: [Lexington and West Cambridge Branch]	767 43	
U. S. mails, $1 994. Rents, $4,107 27	6,101 27	
Total income, [from Jan. 1, '46 to Jan. 1, '47]		286,645 36
Net earnings after deducting expenses	169,197 95	
[The dividends are made up Feb. 1st and Aug. 1st]		

DIVIDENDS.

[Feb. 1, 1846, 5 per cent. on $1,322,500	$66,125	
[Aug. " " " 1,763,400	88,170	
		154,295 00
Surplus not divided, [including 5 mos. net earnings	114,739 39	
Surplus last year do.	99,836 37	
Total surplus, do.	114,739 39	

ESTIMATED DEPRECIATION BEYOND RENEWALS, VIZ:
Road and bridges, [nearly new, and we have not charged off anything to depreciation beyond renewals.]
Buildings, do. do.
Engines and cars, [under this head, we have charged off to depreciation, $4,118 69, to Feb. 1, 1846.]

NOTES.

* 3526 shares were created June 25, 1846, in addition to the above, on which $25 per share has been paid, amounting to $88,175.

† The amount of interest paid stockholders while the road was constructing, $60,165 93; and also the price paid the Charlestown Branch railroad company for their road, have been apportioned among the different items of cost of road and equipments. The Charlestown Branch road has been paid for during the past year.

‡ Including purchase of Charlestown branch railroad.

We have agreed with the Lexington and West Cambridge railroad company to furnish cars and engines, and man their road for one year from the 1st day of September last, paying them at the rate of four per cent. per annum on the cost of their road, being about $180,000; they keeping the road and buildings in good repair during the year. A large part of the freight on our road, to wit, ice, wood, ship-timber and bricks, is neither loaded nor unloaded by us; hence that expense does not appear in our freight expenses, as it is paid by the owners.

We have to report the following accidents:

May 17, 1846, Mr. Otis Gregory, freight conductor, while changing a car out of the freight train at Concord, with a yoke of oxen, was thrown on to the track, and one of the wheels passed over his foot, from the effects of which he lost his life in about one week.

July 9th, our special train to Waltham came in collision with a horse and buggy, at a crossing in Waltham, and broke the buggy in pieces, but did not do any other damage of consequence.

July 13th, an Irishman was injured, at Concord, by attempting to get on to the cars after they had left the depot.

Nov. —, Mr. Fowle, of Shirley, was injured, at South Acton. By mistake, he had taken his seat in the up instead of the down train; when he discovered his mistake, the down train was in motion, and in attempting to get on to it, he fell, and the car wheel passed over his arm. He has since nearly recovered.

Also, in November, the special train came in collision with a wagon, owned and driven by Mr. Brooks, of Loncoln, and killed his horse.

In neither of the above cases can the accident be imputed to a want of care and attention on the part of the company's agents.

In November last, our 11 o'clock train for Fitchburg, came in collision with some freight cars at one of the brick yards, near Fresh pond meadows, which were run out on to the main track by a mistake on the part of the owners of the yard; owing to a northerly wind, which blew the smoke and steam from the brick kilns across the track, the cars were not discovered in season to stop the train before it struck them. The engineer and fireman were slightly injured, but no other damage done, excepting to the engine and cars, which have been since repaired.

In accordance with the terms of the act of incorporation in the charter, the Lancaster and Sterling branch railroad has become vested in this company. We have made several surveys on the line of the same, but, as yet, have done nothing further towards its construction. We have located the Watertown branch railroad to Watertown village, and expended, in its construction, the sum of $30,750 27. We are not yet prepared to report the different items of cost on the same, nor the characteristics of the road.

All which is respectfully submitted by

Jacob Forster, Horatio Adams, David Loring, Henry Timmins, Abel Phelps, Elias H. Derby, N. F. Cunningham—*Directors.*

The Gauges.

We take the following comparative statement from the Railway Record of 27th March.

Average speed of 12 daily trains now running on the London and Birmingham, and Great Western, from Euston square to Birmingham, and from Paddington to Bristol; showing the present relative speed of the broad and narrow gauge, by the practical working of the two lines, and the real day's work done for the public. The advantage is 1¼ miles per hour ONLY *in favor of the Great Western;* not sufficient mechanical superiority to compensate for the numerous breaks of gauge, which must result if the broad gauge extends to the north.

GREAT WESTERN.

Leave Paddington.	Arrive at Bristol.	Time on the road. h.	m.	Stop.
6 0	10 0	4	0	12
6 30	3 40	9	10	26
7 30	12 18	4	48	16
9 45	12 28	3	43	3
10 15	2 35	4	20	9
10 30	7 30	9	0	26
12 0	4 25	4	25	9
1 0	5 30	4	30	15
2 0	6 25	4	25	11
4 45	9 35	4	50	17
5 30	8 15	4	45	4
8 55	1 15	4	20	11
		59	16	159

118 miles. Average speed of 12 trains, 24 miles an hour.

LONDON AND BIRMINGHAM.

Leave Euston square.	Arrive at Birmingham.	Time on the road. h.	m.	Stop.
7 0	2 40	7	40	22
6 15	10 50	4	35	9
7 30	12 35	5	5	18
8 30	12 45	4	15	5
10 0	1 25	3	25	4
11 0	3 35	4	35	10
12 30	5 35	6	5	16
2 45	7 25	4	30	8
5 0	8 0	3	0	2
5 30	10 0	4	30	10
8 45	1 5	3	40	6
Add another 3d class train to make 12. The Great Western have two.		7	40	23
		59	0	133

112 miles. Average speed of 12 trains. 22¾ miles an hour.

ITEMS.

Damages for the death of a Railroad Passenger.—We understand that Doctor Alfred Hitchcock, of Ashby, brother of the late Dr. Henry D. Hitchcock, of Middleboro', who was killed on the 23d of February last, by a collision of cars on the Fall River railroad, has made an adjustment of the claims of the widow and heirs against said company. The company, through their treasurer, David Anthony, Esq., of Fall River, has paid to the legal claimants the sum of $4500, and have received a discharge from any further liability.—*Boston Journal.*

Connecticut and Passumpsic Rivers Railroad.—We are pleased to hear of the success of this corporation in obtaining means to forward the building of their road. In another column will be found an advertisement for contracts to complete the grading and masonry of 34 miles of its extent, to be bid for by sections, the plans for which may be seen at the office of the company.—*Boston Courier.*

Northern N. H. Road.—The indications are that this road will be completed within the time named, say in November, or thereabouts. The work is about to be commenced on the bridge across the Connecticut, to join the Northern and Central roads, and it is expected it will be done in September.

Vermont Central.—The tendency of this road is upward and onward; we expect to see the iron horse upon a part of the road by the 1st of January next. The annual meeting of the stockholders, and also a meeting of the directors, will be holden in this village on the 4th of June.—*Montpelier Watchman.*

Ogdensburg Railroad.—We understand that the directors of the Ogdensburg railroad, at their recent meeting, voted to pay 7 per ct. interest on moneys paid in by stockholders, until the road is completed and in operation.

Portsmouth and Concord Railroad.—The ground was broken on the first section of this railroad, at the Portsmouth Plains, on Monday morning. Remarks were made on the occasion by A. W. Haven, President of the company, Samuel Cushman and A. Ladd.—Messrs. Belknap & Co. are the contractors.

Boston, Concord and Montreal Railroad.—This enterprize, the success of which is demanded by the imperious necessity of people living in the very important and thriving towns along the route, is likely to be carried into satistactory and speedy execution.—*Boston Courier.*

Schuylkill County.—By the census of '40, the population of Schuylkill county is set down at 29,051. From the great improvement in business, and rapid increase of population, there is no doubt but that the population of the county at this time, exceeds 40,000 inhabitants. Few counties in the State have increased more rapidly than Schuylkill in population since 1840.

Extraordinary Steam Hammer.—A huge hammer, worked by steam, has recently been erected at the works of Messrs. Peter Cato & Co., Liverpool, which, while it strikes with a force of five tons, is yet capable of such nice adjustment as to crack a walnut without bruising the kernel. Messrs. Morris &

Tasker, of this city, have one of the hammers in operation. They had it on exhibition at the last Fair of the Franklin Institute.

Lake Superior.—The following are the returns to the government office, of the copper ore taken out by the different companies for the month of January, viz: Pittsburg and Boston company, 300,000 lbs.; Copper Falls company, 20,000; Bohemia, 40,000; North West, 10,000; Eagle River, *boulders pure*, 1,000; Eagle Harbor, 4000; North Western, 4000; Suffolk, 200,000; Luc La Belle, 20,000.

Iron Bridge Rail.—Mr. Wood, of the British Iron Company's works in Abersychan, recently succeeded in rolling iron rails weighing 90 lbs. per yard, and 30 feet in length. These rails are said to be perfect, and very nicely finished. It is difficult to say where the limits to the size of iron rails will be found.

The Wheeling Bridge.—Books were opened at Wheeling for subscriptions to the stock for the bridge over the Ohio at Wheeling. At the end of the second day, $92,000 of stock was taken, and the first instalment paid. The books were to be kept open another day. We think the whole stock required is $200,000.

Railways.—Strong efforts are making to raise means for constructing railways from Pittsburg westward, through Ohio, and to connect with Lake Erie at Cleveland. Two routes are proposed. One through Beaver, Salem, etc. to Akron, thence north to Cleveland, and southwest by Wooster, etc., to Columbus and Cincinnati. The other from Wellsville, by Canton, Massillon and Wooster to Columbus, branching north to Cleveland. Either of these plans, it is claimed, will save the expense of two roads, for a considerable distance. The line from Pittsburg or Wellsville, to Akron or Massillon, to be used as part of the line connecting Cleveland with Pittsburg and the east, and southeast, and also as the line connecting Cincinnati with Cleveland, Pittsburg and the eastern cities.

BOUND VOLUMES.

Volumes of this Journal, for the Years 1838 *to* 1846, *INCLUSIVE, may be had Bound, at Subscription Price, on application at this Office.*

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TWO CONTRACTORS.—KENNEBEC AND PORTLAND RAILROAD.—Proposals will be received at this office until the 15th of May, for the *Grading and Masonry* of 28 miles of this road, extending from North Yarmouth to Bowdoinham, and the Branch Road from Brunswick to Bath, including the masonry for the Bridges across the Androscoggin, New Meadows and Cathance rivers. The line of road and the plans and profiles will be ready for examination on the 10th of May; after which time any information in relation to the work can be had at this office, or of the Resident Engineers on the line of the road.

Persons unknown to the officers of the company, must accompany their bids with satisfactory evidence of their ability to execute the work.

The remainder of the line from Bowdoinham to Angusta, 21 miles, will be ready for contract about the 15th of June; of which due notice will be given.

GEO. S. GREENE, Eng. K. & P. R. R.
ENGINEERS OFFICE, K. & P. R. R.
Brunswick, Me., April 6, 1847. } 1m16

ENGLISH PATENT WIRE ROPES—FOR THE USE OF MINES, RAILWAYS, ETC.—for sale or imported to order by the subscriber.

These Ropes are manufactured on an entirely different principle from any other, and are now almost exclusively used in the collieries and on the railways in Great Britain, where they are considered to be greatly superior to hempen ones, or iron chains, as regards safety, durability and economy. The plan upon which they are made effectually secures them from corrosion in the interior, as well as the exterior of the rope, and gives a greater compactness and elasticity than is found in any other manufacture.

Many of these ropes have been in constant operation in the different mines in England, and on the Blackwall and other inclined planes, for three and four years, and are still in good condition.

They have been applied to almost every purpose for which hempen ropes have been used—mines, heavy cranes, standing rigging, window cords, lightning conductors, signal halyards, tiller ropes, etc. Reference is made to the annexed statement for the relative strength and size. Testimonials from the most eminent engineers in England can be shown as to their efficiency, and any additional information required respecting the different descriptions and application will be given by

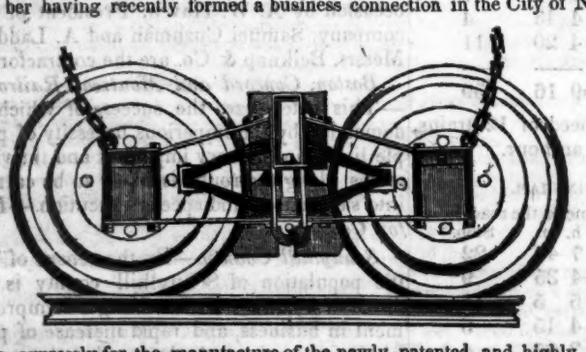
ALFRED L. KEMP,
75 Broad street, New York, sole agent in the United States.

Statement of Trial made at the Woolwich Royal Dock Yard, of the Patent Wire Ropes, as compared with Hempen Ropes and Iron Chains of the same strength.—October, 1841.

WIRE ROPES.				HEMPEN ROPES.			CHAINS.		STRENGTH
Wire gauge number.	Circumference of rope.	Weight per fathom.		Circumference of rope.	Weight per fathom.		Weight per fathom.	Diameter of iron.	Tons.
	INCH.	LBS.	OZ.	INCH.	LBS.	OZ.	LBS.	INCH.	
11	4¼	13	5	10	24	–	50	15-16	20
13	3¼	8	3	8¼	16	–	27	11-16	13¼
14	3¼	6	11	7¼	12	8	17	9-16	10¼
15	2¾	5	2	6¼	9	4	13¼	1-2	7¼
16	2¼	4	3	6	8	8	10¼	7-16	7

N.B. The working load, with a perpendicular lift, may be taken at 6 cwt. for every lb. weight per fathom, so that a rope weighing 5 lbs. per fathom would safely lift 3360 lbs., and so on in proportion. 1y24

RAY'S EQALIZING RAILWAY TRUCK.—THE SUBSCRIber having recently formed a business connection in the City of New



York, expressly for the manufacture of the newly patented and highly approved Railroad Truck of Mr. Fowler M. Ray, is ready to receive orders for building the same, from Railroad Companies and Car Builders in the United States, and elsewhere.

The above Truck has now been in use from one to two years on several roads a sufficient length of time to test its durability, and other good qualities, and to satisfy those who have used it, as may be seen by reference to the certificates which follow this notice.

There have been several improvements lately introduced upon the Truck, such as additional springs in the bolster of passenger cars, making them delightful riding cars—adapting it to tenders, trucks forward of the locomotive, and freight cars, which, with its original good qualities, make it in all respects the most desirable truck now offered to the public.

Orders for the above, will, for the present, be executed at the New York Screw Mill, corner 33d street and 3d avenue, (late P. Cooper's rolling mills) and at the Steam Engine Shop of T. F. Secor & Co., foot of 9th street, East river, (of which firm the subscriber was late a partner) under the immediat supervision of Mr. Ray himself.

Several sets of trucks containing the latest improvements have recently been turned out for the New York and Erie railroad, and the New Jersey Transportation company, which may be seen upon said roads.

The patronage of Railroad Companies and Car Builders is respectfully solicited.

New York, May 4, 1846. W. H. CALKINS, and Others.

To all whom it may concern:—This is to certify that the New Haven, Hartford and Springfield railroad co., have had in use six sets of F. M. Ray's patent trucks for the last 20 months, during which time it appears to me, they have proved to be the bes and most economical truck now in use.

[Signed,] WILLIAM ROE, Sup't of Power.

I certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Philadelphia and Reading railroad for some time past, under a passenger car.

For simplicity of construction, economy in cost, lightness of material, and extreme ease of motion, I consider it the best truck we have ever used. Its peculiar make also renders it less liable to be thrown off the track, when passing over any obstruction. We intend using it extensively under the passenger and freight cars of the above road.

Reading, Pa., October 6, 1845. [Signed,] G. A. NICOLL,
Sup,t Transportation, etc., Philadelphia and Reading Railroad.

To all whom it may concern:—This is to certify that the N. Jersey Railroad and Transportation company have used Fowler M. Ray's Truck for the last seven months, during which time it has operated to our entire satisfaction. I have no hesitation in saying that it is the simplest and most economical truck now in use. [Signed,] T. L. SMITH,

Jersey City, November 4, 1845. N. Jersey Railroad and Transp. Co.

This is to certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Long Island railroad for the last year, under a freight car.

For simplicity of construction, economy in cost, lightness of material and ease of motion, I consider it equal to any truck we have in use.

Long Island Railroad Depot, Jamaica November 12, 1845. } [Signed,] JOHN LEACH, Sup't Motive Power. 1y19

RICH & CO'S IMPROVED PATENT SALAMANDER SAFES.

Warranted free from dampness, as well as fire and thief proof.

Particular attention is invited to the following certificates, which speak for themselves:

TEST No. 10.

Certificate from Mr. Silas C. Field, of Vicksburgh, Mississippi.

On the morning of the 14th ult., the store owned and occupied by me in this city, was, with its contents, entirely consumed by fire. My stock of goods consisted of oil, rosin, lard, pork, sugar, molasses, liquors, and other articles of a combustible nature, in the midst of which was one of Rich's Improved Patent Salamander Safes, which I purchased last October of Mr. Isaac Bridge, New Orleans, and which contained my books and papers. This safe was red hot, and did not cool sufficiently to be opened until 16 hours after it was taken from the ruins. At the expiration of that time it was unlocked, when its contents proved to be entirely uninjured, and not even discolored. I deem this test sufficient to show that the high reputation enjoyed by Rich's Safes is well merited. S. C. FIELD.

TEST No. 11.—*Certificate.*

By the fire which occurred in this village on the 27th July last, our Law Office, together with many other buildings, was destroyed—we had in our office one of Rich's *Improved* Patent Salamander Safes, which, though heated red hot, preserved, without being the least damaged, many papers valuable to our clients—the envelopes of a few papers being *slightly* scorched. Some twenty-four hours after the fire, the Safe was removed, and so hot was it, that several hours were required for it to cool off. Our office was in the second story of a large brick building, all the wood used in construction of said house being *pitch pine.* While the Safe was red hot, one of the walls tumbled in, and so injured the lock that it was necessary to break the door open. From this test, we feel no hesitancy in recommending "Rich's Patent Salamander Safe" as *entirely fire proof.*

GOREE & KING.

Marion, Ala., Sept. 15th, 1846.

Still other Tests in the Great Fire of July 19, 1845.

The undersigned purchased of A. S. Martin, No. 138½ Water street, one of Rich's Improved Patent Salamander Safes, which was in our store, No. 54 Exchange place. The store was entirely consumed in the great conflagration on the morning of the 19th inst. The safe was taken from the ruins 52 hours after, and on opening it, the books and papers were found entirely uninjured by fire, and only slightly wet—the leather on some of the books was parched by the extreme heat. RICHARDS & CRONKHITE.

Benton, Miss., December 27, 1845.

One of Rich's Improved Salamander Safes, which I purchased on the 2d of June last of A. S. Marvin, 138½ Water street, agent for the manufacturer, was exposed to the most intense heat during the late dreadful conflagration. The store which I occupied, No. 46 Broad street, was entirely consumed; the safe fell from the 2d story, about 15 feet, into the cellar, and remained there 14 hours, and when found, I am told, and from its appearance afterwards, should judge that it had been heated to a red heat. On opening it, the books and papers were found not to have been touched by fire. I deem this ordeal sufficient to confirm fully the reputation that Rich's safe has already obtained for preserving its contents against all hazards. (Signed,)

WM. BLOODGOOD.

New York, 21st July, 1845.

Reference made to upwards of nine hundred and fifty merchants, cashiers, brokers, and officers of courts and counties, who have Rich's Safe's in use.

The above safes are finished in the neatest manner, and can be made to order at short notice, of any size and pattern, and fitted to contain plate, jewelry, etc. Prices from $50 to $500 each. For sale by

A. S. MARVIN, General Agent,
138½ Water st., N. Y.

Also by Isaac Bridge 76 Magazine street, New Orleans.

Also by Lewis M Hatch, 120 Meeting street Charleston, S. C. 16 tf

FRENCH AND BAIRD'S PATENT SPARK ARRESTER.

TO THOSE INTERESTED IN Railroads, Railroad Directors and Managers are respectfully invited to examine an improved SPARK ARRESTER, recently patented by the undersigned.

Our improved Spark Arresters have been extensively used during the last year on both passenger and freight engines, and have been brought to such a state of perfection that no annoyance from sparks or dust from the chimney of engines on which they are used is experienced.

These Arresters are constructed on an entirely different principle from any heretofore offered to the public. The form is such that a rotary motion is imparted to the heated air, smoke and sparks passing through the chimney, and by the centrifugal force thus acquired by the sparks and dust they are separated from the smoke and steam, and thrown into an outer chamber of the chimney through openings near its top, from whence they fall by their own gravity to the bottom of this chamber; the smoke and steam passing off at the top of the chimney, through a capacious and unobstructed passage, thus arresting the sparks without impairing the power of the engine by diminishing the draught or activity of the fire in the furnace.

These chimneys and arresters are simple, durable and neat in appearance. They are now in use on the following roads, to the managers and other officers of which we are at liberty to refer those who may desire to purchase or obtain further information in regard to their merits:

R. L. Stevens, President Camden and Amboy Railroad Company; Richard Peters, Superintendant Georgia Railroad, Augusta, Ga.; G. A. Nicolls, Superintendant Philadelphia, Reading and Pottsville Railroad, Reading, Pa.; W. E. Morris, President Philadelphia, Germantown and Norristown Railroad Company, Philadelphia; E. B. Dudley, President W. and R. Railroad Company, Wilmington, N. C.; Col. James Gadsden, President S. C. and C. Railroad Company, Charleston, S. C.; W. C. Walker, Agent Vicksburgh and Jackson Railroad, Vicksburgh, Miss.; R. S. Van Rensselaer, Engineer and Sup't Hartford and New Haven Railroad; W. R. M'Kee, Sup't Lexington and Ohio Railroad, Lexington, Ky.; T. L. Smith, Sup't New Jersey Railroad Trans. Co.; J. Elliott, Sup't Motive Power Philadelphia and Wilmington Railroad, Wilmington, Del.; J. O. Sterns, Sup't Elizabethtown and Somerville Railroad; R. R. Cuyler, President Central Railroad Company, Savannah, Ga.; J. D. Gray, Sup't Macon Railroad, Macon, Ga.; J. H. Cleveland, Sup't Southern Railroad, Monroe, Mich.; M. F. Chittenden, Sup't M. P. Central Railroad, Detroit, Mich; G. B. Fisk, President Long Island Railroad, Brooklyn.

Orders for these Chimneys and Arresters, addressed to the subscribers, care Messrs. Baldwin & Whitney, of this city or to Hinckly & Drury, Boston, will be promptly executed. FRENCH & BAIRD.

N. B.—The subscribers will dispose of single rights, or rights for one or more States, on reasonable terms.

Philadelphia, Pa., April 6, 1844.

*** The letters in the figures refer to the article given in the *Journal* of June, 1844. ja45

PATENT HAMMERED RAILROAD, SHIP and Boat Spikes. The Albany Iron and Nail Works have always on hand, of their own manufacture, a large assortment of Railroad, Ship and Boat Spikes, from 2 to 12 inches in length, and of any form of head. From the excellence of the material always used in their manufacture, and their very general use for railroads and other purposes in this country, the manufacturers have no hesitation in warranting them fully equal to the best spikes in market, both as to quality and appearance. All orders addressed to the subscriber at the works, will be promptly executed. JOHN F. WINSLOW, *Agent.*

Albany Iron and Nail Works, Troy, N. Y.

The above spikes may be had at factory prices, of Erastus Corning & Co., Albany; Hart & Merritt, New York; J. H. Whitney, do.; E. J. Etting, Philadelphia; Wm. E. Coffin & Co., Boston. ja45

MACHINE WORKS OF ROGERS, Ketchum & Grosvenor, Patterson, N. J. The undersigned receive orders for the following articles, manufactured by them of the most superior description in every particular. Their works being extensive and the number of hands employed beinglarge, they are enabled to execute both large and small orders with promptness and despatch.

Railroad Work.

Locomotive steam engines and tenders; Driving and other locomotive wheels, axles, springs & flange tires; car wheels of cast iron, from a variety of patterns, and chills; car wheels of cast iron with wrought tires; axles of best American refined iron; springs; boxes and bolts for cars.

Cotton, Wool and Flax Machinery

of all descriptions and of the most improved patterns, style and workmanship.

Mill gearing and Millwright work generally; hydraulic and other presses; press screws; callenders; lathes and tools of all kinds; iron and brass castings of all descriptions.

ROGERS, KETCHUM & GROSVENOR,
a45 Paterson, N. J., or 60 Wall street, N. York.

PATENT RAILROAD, SHIP AND BOAT Spikes. The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years' successful operation, and now almost universal use in the United States (as well as England, where the subscriber obtained a patent) are found superior to any ever offered in market.

Railroad companies may be supplied with Spikes having countersink heads suitable to holes in iron rails, to any amount and on short notice. Almost all the railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. York will be punctually attended to.

HENRY BURDEN, *Agent.*

Spikes are kept for sale, at Factory Prices, by I. & J. Townsend, Albany, and the principal Iron merchants in Albany and Troy; J. I. Brower, 222 Water St., New York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

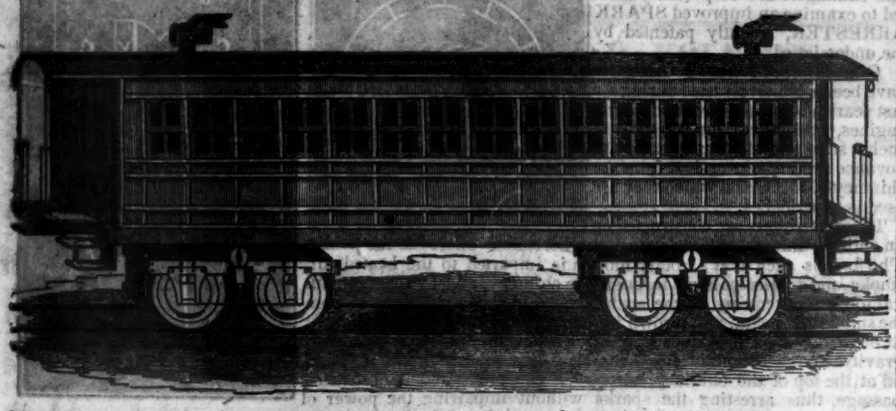
*** Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand.

ja45

SPRING STEEL FOR LOCOMOTIVES, Tenders and Cars. The Subscriber is engaged in manufacturing Spring Steel from 1¼ to 6 inches in width, and of any thickness required; large quantities are yearly furnished for railroad purposes, and wherever used, its quality has been approved of. The establishment being large, can execute orders with great promptitude, at reasonable prices, and the quality warranted. Address

JOAN F. WINSLOW, *Agent,*
1y Albany Iron and Nail Works,

DAVENPORT & BRIDGES'
CAR WORKS, CAMBRIDGEPORT, MASS.

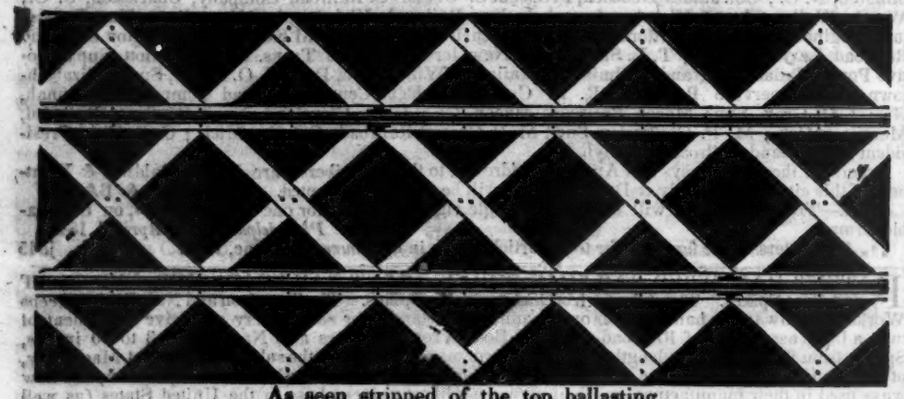


Manufacture to Order, Passenger and Freight Cars of every description, and of the most improved pattern; also furnish Snow Ploughs and Chilled Wheels of any pattern and size. Forged Axles, Springs, Boxes and Bolts for Cars at the lowest prices.

All orders punctually executed and forwarded to any part of the country.

Our Works are within fifteen minutes ride from State street, Boston—Omnibuses pass every fifteen minutes. 10tf

THE HERRON RAILWAY TRACK,



As seen stripped of the top ballasting

A GOLD MEDAL AWARDED THE INVENTOR BY THE AMERICAN INSTITUTE.

THE UNDERSIGNED RESPECTFULLY invites the attention of Engineers, and Railroad Companies, to some highly important improvements he has recently made in the Herron system of Railway structure. These improvements enable him to effect a very large reduction in the quantity of Timber, and cost of construction, without impairing the strength of the Track, or its powers of resisting frost, while they secure additional features of excellence in the Drainage and facility of making Repairs.

The above cut represents the "Herron Track" as it is laid on the Philadelphia and Reading, and on the Baltimore and Susquehanna Railroads. The intersection of the sills of the trellis are 5 feet from centre to centre, while in the new construction they are only 2½ feet. This renders the string piece unnecessary, thus removing the only objectionable feature found in the Track.

The result of experience has proved that all Tracks constructed with longitudinal timbers, such as mud sills, and more especially, the continuous bearing string pieces retain the rain water that falls between the Rails, which, being thus confined, settles along those timbers, and accumulating in quantity flows rapidly along them on the descending grades, washing out the earth from under the timber, and frequently causing large breaches in the embankments of the road. Whereas all water intercepted by the oblique sills of the trellis, is discharged immediately into the side ditches.

In the 5 foot plan, the Track occupies a Road bed nearly 11 feet wide, while the new construction takes but 8 feet; the timber being more concentrated under the Rails. A block of hard wood, about 2 feet long and 15 inches wide, is introduced into a square of the trellis for the purpose of giving an additional, and effectual support to the joints of the Rails, which rest upon it. Should these joint blocks become chafed and worn by the working, and imbedding of the chairs, as is now the case on all Railroads, they can be readily replaced without any derangement of the timbers less liable to wear.

The following is a general estimate of its cost near the seaboard. In the interior it will be considerably less.

ESTIMATE OF THE PROBABLE COST OF ONE MILE.

4,224 Timbers, 11 ft. long, 3 x 6 inches = 68,696 ft. b.m., at $10 =	$686 96
587 Oak joint blocks 2 ft. x 3 x 15 in. = 4,403 ft. b.m., at $13 =	57 24
13,000 Spikes = 2,250 lbs. at 4½ cts	101 25
Workmanship free of patent charge	600 00
Cost of one mile including the laying of the Rail	$1,445 45

He has made other important improvements, which will be shown in properly proportioned models, that give a much better idea of the great strength of the Track than a drawing will do.

Sales of the Patent right to all the distant States will be made on liberal terms.

JAMES HERRON.
Civil Engineer and Patentee.
No. 277 South Tenth St., Philadelphia. 33tf

FRANKLIN HOUSE,
No. 103 Chestnut Street, Philadelphia.

The undersigned takes the liberty of calling the attention of the readers of the Journal to the fact that the *Office* is removed from New York to the FRANKLIN HOUSE, *Philadelphia*, where he will be always pleased to *meet* and *greet* them. They will not only find a pleasant *Reading Room*, with lots of *foreign* periodicals, treating of *Railroads* and *Machinery*, but they will always find *good-sized* and *airy* rooms—*clean beds*—and a *well supplied* table. If they would have further proof of this, they have only to call, and judge for themselves, and much oblige the proprietor, D. K. MINOR.

ENGINEERS' AND SURVEYERS'
INSTRUMENTS MADE BY
EDMUND DRAPER,
Surviving partner of
STANCLIFFE & DRAPER.

No 23 Pear street, below Walnut,
1y10 near Third, Philadelphia.

LAP—WELDED
WROUGHT IRON TUBES
FOR
TUBULAR BOILERS,
FROM 1 1-4 TO 6 INCHES DIAMETER,
and
ANY LENGTH, NOT EXCEEDING 17 FEET.

These Tubes are of the same quality and manufacture as those so extensively used in England, Scotland, France and Germany, for Locomotive, Marine and other Steam Engine Boilers.

THOMAS PROSSER,
Patentee.
1y25 28 Platt street, New York.

RAILROAD IRON.
MOUNT SAVAGE IRON WORKS

THIS Company are prepared to execute orders for RAILROAD IRON, of any pattern, and equa in point of quality to any other manufactured.

Address J. M. HOWE,
Pres't. Mt. Savage Iron Works,
Dec. 25, 1y* Maryland.

ENGINEERS and MACHINISTS.

THOMAS PROSSER, 28 Platt St. N. Y. (*See Adv.*)
J. F. WINSLOW, Albany Iron and Nail Works Troy, N. Y. (*See Adv.*)
TROY IRON AND NAIL FACTORY, H. Burden, Agent. (*See Adv.*)
ROGERS, KETCHUM & GROSVENOR, Patterson, N. J. (*See Adv.*)
S. VAIL, Speedwell Iron Works, near Morristown, N. J. (*See Adv.*)
NORRIS, BROTHERS, Philadelphia Pa. (*See adv.*)
FRENCH & BAIRD, Philadelphia. (*See Adv.*)
NEWCASTLE MANUFACTURING COMPANY, Newcastle, Del. (*See Adv.*)
ROSS WINANS, Baltimore, Md.
CYRUS ALGER & Co., South Boston Iron Co.
SETH ADAMS, Engineer, South Boston.
STILLMAN, ALLEN & Co., N. Y.
JAS. P. ALLAIRE, N. Y.
PHŒNIX FOUNDRY, N. Y.
ANDREW MENEELY, West Troy.
JOHN F. STARR, Philadelphia, Pa.
MERRICK & TOWNE, do.
HINCKLEY & DRURY, Boston.
C. C. ALGER, Stockbridge Iron Works Stockbridge, Mass.